New Orleans Medical
and
Surgical Journal

Vol. 95 NOVEMBER, 1942 No. 5

THE X-RAY CONSULTATION*

T. I. ST. MARTIN, M. D.
HOUMA, LA.

In the few minutes allotted me I shall speak, not from the point of view of the city doctor referring the case to the roentgenologist, but from the point of view of the country practitioner seeking assistance in the diagnosis of his case.

In our own way, we men in the country, without the resources of our fortunate urban confrères, battle our way through in our fight with life and death. Often the days are too short to devote the time to some of the simple laboratory procedures that would put us on the right track to establish a rational working diagnosis. It is to this group of men I am speaking. For in the country, truly the roentgenologist is a consultant.

But sometimes it is hard work to assist in establishing a diagnosis in a patient who is referred, simply with the request, for "x-ray examination," without a working diagnosis. This is not meant as a reproach to my fellow confrère in the country, but an appeal to him to spend a precious moment or two examining his patient. A bit of palpation may disclose the fact that there is a mass in the abdomen, or glands in a certain region. The prick of a needle and a hemoglobin scale may establish the fact that there is an anemia. A simple test consuming just a few moments may bring out the fact that there is occult blood in a stool, and direct attention to a bleeding lesion somewhere in the intestinal tract. A morning, noon, and evening temperature chart may cause a more than passing scrutiny of the patient's chest. Routine urinary examination will often establish a working diagnosis.

It may be well to stress what can be expected of an x-ray examination. An x-ray film does not usually lie, though it may at times, because of some accident, and an "artefact" is present. But when the same unexplainable shadow presents itself repeatedly, it is not an artefact.

In referring a patient to the x-ray laboratory, remember you seek a consultation over the shadows or filling defects cast by gross pathology on the x-ray film. You are not seeking a report of microscopic structures and findings. Imagine yourself inspecting a patient's back. You see and feel a tumor which you know from past experience to be a lipoma. You aspirate a fluid; it seems to be serous, or it may seem to be purulent. At any rate it has worked out that way in the past. The microscope only will give a definite answer. Conceive then of the roentgenologist as a doctor who has made a study of the shadows cast by gross pathology on the x-ray film. Then hold your consultation. Do not look for magic. You will get it sometimes, but that is far from the rule.

In our present-day search for the ultimate in x-rays, with the laminograph, taking as many as ten layers to the inch, finer and finer focal spots, one might wonder how a diagnosis was made with the equipment obtainable in the old days. In intestinal work we depended on fluoroscopy. Most of us were not able to take films of stomachs on heavy subjects with diaphragms and grids in a tenth or a fifth of

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 28, 1942.

a second as we do today. None the less many an interesting diagnosis was made.

In view of the fact that the intention expressed when I was invited to read this paper was that it should be given from the point of view of the rural physician, rather than the city roentgenologist, the cases presented will be a hodge-podge, with the object in view of suggesting what can be done in the rural x-ray consultation. In some of the spinal injuries, the roentgenologist and the orthopedist may both feel that the cases presented, and the method of presenting them are elementary. The cases themselves are not out of the ordinary. The intention is to bring out the fact that one could be brought out best in one position and another in another position, and the plea is for a more complete examination than the routine antero-posterior and lateral views in suspected spinal injuries, especially in heavy subjects.

With much of the equipment still in use over the country, it is not unusual to spend as long as 30 to 45 seconds to get a film in the lateral view of the lumbar spine in heavy subjects, and in that length of time there is likely to be motion, or so much secondary radiation that all detail is lost, and nothing but a compression fracture can be brought out—if it is brought out at all at the first examination. Most of our trouble is in heavy subjects—it is these great big clumsy fellows who are breaking their backs while standing on their feet—and they make up the great number of back injuries we are called upon to treat in industry.

The routine antero-posterior and lateral films that constitute the usual examination should not be looked upon as the complete examination in all cases. Anything unusual should be re-checked with both obliques and even stereoscopic views. I wonder, if all of these views were taken at the first examination, if we would continue supposing that a fracture that could not be brought out at the time of the injury would be easier to detect at a later date, after the damage to the vertebra has made the injury so evident.

The referring physician feels that an antero-posterior and a lateral view should be sufficient, and cannot see why the patient should pay for more films, and the roentgenologist cannot take more films at his own expense and survive. There is this angle too. Some men have a wonderful gift of sight, and when an x-ray film is placed before them in a viewing box can see things that another man would require obliques and stereoscopic films besides. But all of us are not gifted with such eyes, and we make up the rank and file of roentgenologists to whom you are bound to turn. Not so long ago, at a meeting of one of the big x-ray societies, I heard a prominent man condemn certain stereoscopic films. He said one saw too much in stereoscopic films. To refute that statement, one has only to read leading textbooks and journals and see what equally prominent men have to say on the other side of the argument. If it takes seven different films of a given vertebra to clear up a doubt, it certainly will be less expensive to clear up that doubt then and there, rather than have repeated examinations in the course of time, at a much greater expense and with a great deal more suffering, all still at the expense of the patient. That may be called floundering, this taking of so many films in different positions, but who among us does not catch himself floundering, day in and day out, in stumbling upon a correct diagnosis. It is better to err on the conservative side and immobilize a spine that is not broken than to fail to immobilize one that really is broken.

VERTEBRAL FRACTURES

One has to be brave indeed to name isolated fractures of the articular processes of vertebrae. Watson-Jones gives two particularly interesting references, Steiner,[1] and Rendich and Westing.[2] Steiner gives a most comprehensive treatise on these fractures, with a word of caution: "In my material I have no case of isolated fracture of a superior articular process." Also, "In cases of fracture around the inferior articular processes, one must be very careful in making the diagnosis of fracture." In Rendich and Westing's article the infrequency of fracture of articular processes is stressed,

and fracture of a superior articular process hardly seems possible. The lines seen in the cases presented are named accessory articular processes, or ossicles. And it seems likely that the authors are right. However, even with the words of caution just quoted, I find it difficult to place some of the following cases in the categories mentioned. The point in presenting them is that in all but one, L. M. E., the fractures could not be named in the routine antero-posterior and lateral views, but required either stereoscopic visualization or oblique views.

CASE REPORTS

Case 1: L. M. E. gave a history of lifting a piece of drilling machinery and developing severe lumbar pain. The usual antero-posterior and lateral views of his lumbar spine revealed fractures of the transverse processes of the third and fourth lumbar vertebrae on the right; besides, there was a fracture of the superior articular process of the fourth lumbar on the left. This fracture of a superior articular process is not an isolated one, of course, because there were fractures of two transverse processes on the opposite side. However, the appearance of the separated fragment is anything but what would be expected of an accessory articular process or ossicle.

Case 2: C. R., 65 inches tall, weighing 220 pounds, fell off an ice truck. Besides sustaining double inguinal herniae, he injured his lumbar spine. The lateral film gave little information, nor was much information obtained from the obliques. However, in the stereoscopic antero-posterior view it was interesting to visualize the fracture through the left pedicle of the fifth lumbar, into the transverse process, with the superior articular process displaced outward, and to trace the bone defect on one of the films.

Case 3: P. L. W., another 220-pound male, injured his back standing on his feet. On the stereoscopic films only was it possible to visualize satisfactorily the fracture through the left inferior articular process of the fifth lumbar. It was with assurance that I traced this fracture on the flat film after having seen it on the stereoscopic films. I mention this because I have been deprived of these films and cannot produce them.

Case 4: B. A., 220-pound male, not over 5 feet, 5 inches tall, was in a truck accident. The only point in presenting the case is that the vertebral arch fracture of the fifth lumbar on the right was brought out most satisfactorily in the oblique view.

Case 5: O. G. E., of interest only because on the stereoscopic films it was possible to trace the dragging vertebral arch of the fifth lumbar vertebra, along with the inferior articular process, following an old injury.

Case 6: V. K. was struck on the head by an eight-inch oil well casing. At the time a diagnosis of fracture of the spinous process of the seventh cervical seemed sufficient to warrant his symptoms. However, when the cervical splint was removed he continued having pain in the upper dorsal region, and an oblique view of the dorsal spine brought out the fact that there was a fracture of the right pedicle of the second dorsal as well.

Case 7: McH., a malingerer, of interest only because x-ray films saved an insurance carrier a good deal of money. Not even after he was confronted with the films could he remember distinctly when someone had introduced iodized oil into his spinal canal for diagnosis, following some previous injury. The case was not difficult to dispose of, and though it did cost money to close it, McH. would have made more as straw boss on the job than he received from an insurance carrier.

Case 8: P. B. was in an automobile wreck. In this case of multiple fractures of the vertebral arches of the cervical spine and of the dens of the second cervical, it was only by bare chance that the base of the dens was brought out after repeated examinations. In the antero-posterior view it was evident that there were fractures through the pedicles of the fifth, sixth, and seventh cervicals, and it was interesting to trace on the stereoscopic films the displacement of the vetebral arches. Later it was possible to bring out on a spotfilm in the oblique view these fractures even more satisfactorily. The curve of the cervical spine was changed. Textbook positions left one high and dry, and it took nothing short of an accident or real good luck to clear the dens of the second cervical of the shadow cast by the lower border of the occipital bone on the one hand and the upper teeth on the other.

THE X-RAY EXAMINATION OF THE NEWBORN

Recently, at home, we have been having too many deaths in newborn infants. As in other things in medicine they came one right behind the other. Two of them were sent to me with a diagnosis of enlarged thymus and died within a few hours of the time I saw them. Whether or not these were thymic deaths will never be proved. On the x-ray film both showed glands that were much enlarged, though in one case there was a triangular shadow through the heart that may have been atelectasis. That does not mean that all of the babies having symptoms attributable to enlarged thymus glands or atelectasis died. I shall show a

slide of one with atelectasis of the left lung who is thriving at this time.

There is much difference of opinion in this matter of the status thymicus, nor is it new. The following case may illustrate it. It was my first experience with a patient suffering from thymic symptoms. The proof of the fact that x-radiation administered nearly twenty years ago must have been of some benefit is that I attended her wedding last summer.

These are not the only babies that should receive x-ray examinations. Many a baby who cries night and day and is diagnosed as colic may have some lesion that may be demonstrated. One I had not six months ago, had a stomach that was still almost full at the end of four hours. On fluoroscopy a thin trickle of barium could be caught through the first part of the duodenum. My one regret is that I did not possess a spotfilm device at that time. There is no point in showing a slide, as all I could demonstrate would be the four-hour stasis.

We should not expect the spectacular, but sometimes we will find it on the x-ray film. The following case is such an instance:

Case 1: V. C., aged six weeks, was brought to our town with a diagnosis of a left Erb's paralysis. The referring physician requested x-ray of the cervical and dorsal spine. The baby did not move the left arm and screamed in pain whenever it was touched. In fact, no matter where this baby was touched, it screamed in pain. At that time the spine seemed to be negative. However, in the first examination the upper two-thirds of the left humerus was caught on one film, and there was seen what was thought to be callus from a fracture distal to that point. Additional films were requested. What was thought to be callus was a dense sleeve of subperiosteal bone around the lower third of the humerus. There was subperiosteal bone deposited around the radius and ulna, and tibiae and fibulae as well. In many of the bones dense white zones were seen just behind the epiphyses. The carpals and tarsals were ringed with dense white bands. And the metacarpals and metatarsals stood out, edged with white lines, with the central parts of the bones almost decalcified. All in all, this was a textbook case of scurvy, even to the pseudoparalysis. In the discussion that was provoked, it was finally brought out that the mother had been on a banana diet for two months prior to the baby's birth. The baby was put on the proper treatment, and though it has been just a little over a month, she is moving the left arm almost as well as the other. The points of interest in this case are, the early age at which scurvy developed, the circumstances that led up to it, and the helplessness of the arm that was so pronounced that it had been splinted and diagnosed Erb's paralysis.

THE X-RAY OF THE GASTROINTESTINAL TRACT

Do not expect a diagnosis of everything in the intestinal tract on one ingested barium meal, the stomach today, the colon tomorrow. Often the colon requires a clysma. Even then, with the colon filled with barium, and the barium syphoned off, and air introduced for the so-called double contrast media, there are difficulties enough encountered. It is not often that you will see what it was my good fortune to bring out in the slide I shall show you.

Case 1: S. D., a male in his late forties, was passing much blood with his stools. No amebae were found. Proctoscopic examination showed a congested rectum and sigmoid, with many points of ulceration, but the bleeding was out of all proportion to what was seen. Accordingly, a barium enema was administered. The gut was slickened, as was to be expected from a colitis, but imagine my surprise when the films showed many small ulcerations. Again the proctoscope was passed, deeper this time, more effectively, and then I really began seeing ulcerations. On anti-amebic therapy all symptoms cleared promptly.

Case 2: E. F. D., male, aged 52, had two separate and distinct emergency appendectomies. Every time he tried to resume work his pain and temperature recurred. Finally he developed a "gurgle," quite a distance below Poupart's ligament, a vague affair, which took me the longest to detect. It felt like gas moving through bowel, way down in the groin. There was no impulse on coughing, no tumor, just that "gurgle." We decided he had some out of the ordinary hernia, and operated on him again, but could find no hernia. There were many diagnoses made in this case, including "synovitis crepitans." Of course, we all x-rayed this man. The humiliating part of it was that the patient begged me to x-ray that part, but I ridiculed the idea. Later, I saw a film made by another roentgenologist with the marker covering the lesion. At a clinic, a great distance away, a film was taken of the region and the diagnosis of osteomylitis of the femur was made.

I wish to stress that this series of cases was presented from the point of view of the rural practitioner, and not the city special-

ist. They illustrate what information may be obtained from the careful roentgenologic study of puzzling cases.

REFERENCES

1. Steiner, Georg: Isolated fractures of the vertebral arch, Am. J. Roentgenol., 39:43, 1938.
2. Rendich, R. A., and Westing, S. W.: Accessory articular process of lumbar vertebrae and its differentiation from fracture, Am. J. Roentgenol., 29:156, 1933.

SPREAD AND METASTASIS IN CARCINOMA OF THE CERVIX UTERI*

THEIR SIGNIFICANCE IN PLANNING TREATMENT

BJARNE PEARSON, M. D.†
AND
MANUEL GARCIA, M. D.†
NEW ORLEANS

In recent years refinements of radiologic treatment have placed carcinoma of the cervix uteri in a favorable group as regards its ultimate outcome. Two factors are principally responsible for this: increased knowledge concerning the tissue dosage required for control of the primary lesion, and the availability of equipment and of methods of extending this range of effective dosage to the lateral progressions of the disease. But the neoplasm also spreads anteriorly and posteriorly in a substantial number of cases either alone or in combination with parametrial involvement. Yet this fact has not received the same degree of attention, and such cases have been treated by irrational methods or dismissed as hopeless.

In order to formulate a more comprehensive and rational attack on the disease there is need for more factual information concerning the spread and metastasis of the tumor. This is best afforded by analysis of postmortem material, which furnishes concrete data on the extent of anatomic invasion in various stages and on the paths of dissemination.

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 28, 1942.

†From the Department of Pathology and Bacteriology of the School of Medicine of Louisiana State University and from the Department of Radiology of the Charity Hospital of Louisiana of New Orleans.

For this reason we have studied a group of 74 cases of carcinoma of the cervix which came to autopsy at Charity Hospital of Louisiana at New Orleans from January 1, 1930, to January 1, 1942. This material is contrasted with certain published and unpublished data obtained from a series of 57 autopsies on carcinoma of the cervix from the University of Minnesota studied by one of us.[1] This combined material, totaling 131 necropsied cases, is one of the largest sources available for analysis. For the sake of brevity we shall refer to the Charity Hospital group as Series A and the University of Minnesota group as Series B.

In this communication we refrain from dealing with such important aspects as infection and hemorrhage and have confined ourselves to the growth tendencies of the neoplasm. Believing that local spread and its consequences are of more practical value we will discuss it more completely, while remote metastasis will receive only incidental consideration.

LOCAL SPREAD

In Series A the areas of infiltration were described in 57 cases. The involvement was as follows: bilateral parametrial spread 60.3 per cent, unilateral parametrial spread 10.3 per cent, vaginal spread 32.7 per cent, rectovaginal tissues 17.3 per cent, and vesicovaginal tissues 8.6 per cent.

The monumental work of Kundrat[2] in 1903 as well as that of Sampson[3] in this country in 1906 laid the foundation for our knowledge of the parametrial spread of the disease. Kundrat's material consisted of 80 operative specimens studied over a period of three years. Twenty-one thousand sections were made through the parametria and pelvic nodes. In 32 cases the parametria and the pelvic nodes were free. In 48 cases the growth had extended beyond the uterus. In all but four of these cases the parametria of one or both sides were involved. In 22 of these cases the parametria were involved but the lymph nodes were free.

It is possible to have involvement of the pelvic nodes without parametrial extension, which occurred in three out of nine of

Sampson's cases. Local lymphatic involvement in operable cases of carcinoma of the cervix runs fairly high. The following are some of the figures given by authors during the pre-irradiation era: Baisch[4] 33 per cent, Von Rosthorn[5] 42.4 per cent, Pankow[6] 28.2 per cent, Schottländer[7] 43 per cent, and Brunet[8] 51 per cent. Higher figures are obtained in postmortem material. Thus Scheib[9] states that lymphatic involvement is present in 43 to 73 per cent of cases at postmortem. In Series A the incidence of pelvic node involvement was 47.3 per cent and in Series B, 59 per cent.

Vaginal spread occurred in Series A in 32.7 per cent and Series B in 24 per cent. Schottländer and Kernmauner found the vagina involved in 36 per cent of their cases, Brunet in 43 per cent. It is quite evident from our series as well as from collected series that in a rather large proportion of cases the disease extends down the vagina. It is well to point out here that the radium technics in vogue are effective only in the upper third of the vagina and more extensive involvement and recurrences are difficult to manage.

In Series A the rectovaginal tissues were involved in 17.3 per cent of the cases. Our designation refers to spread beginning in the region of the rectovaginal septum subsequently involving the rectum at this point by pressure, invasion or fungation of the mass into the lumen. The constricting lesions are those which extend mainly along the uterosacral ligaments and give a characteristic "fish mouth" appearance on proctoscopic examination. Digital examination demonstrates the constriction about 8 to 10 cm. from the anus. The predisposition to fistulae is evident in such lesions.

Spread along the vesicovaginal tissues, which occurred in 8.6 per cent of Series A, extends along the septum between the bladder and the vagina, leading to infiltration of the former with consequent fistulous formations.

It is quite evident from this survey that spread occurs predominantly in the lateral direction and technics of radiation are planned to cope with this. Spread in other directions has largely been ignored in the anatomic study of the disease as well as its therapeutic attack. Such manifestations of the disease have been considered as atypical and have been dealt with by improvisations that have often proved ineffectual and often hazardous.

CONSEQUENCES OF LOCAL SPREAD

The consequences of local spread become manifest with involvement of the ureters, bladder, rectum and pelvic bones. It is obvious from their location that the ureters would be involved early and frequently because of their proximity to the tumor. In Series A 65 per cent of cases had hydronephrosis, with bilateral ureteral constriction in 54 per cent and unilateral constriction in 10.8 per cent. In Series B hydronephrosis was present in 75 per cent of the cases with bilateral constriction in 52 per cent and unilateral constriction in 22 per cent. Thus in the two series (74 and 57 cases) the occurrence and consequence of parametrial spread agree fairly closely (except that of unilateral spread). The combined incidence of hydronephrosis in the two series (131 cases) was 69.5 per cent.

Not all cases of hydronephrosis develop uremia as can be attested by series B in which only 33 per cent died as the result of uremia. This, however, is the largest single cause of death.

Infiltration of the bladder occurred in 32.4 per cent and vesicovaginal fistula in 10.8 per cent of the cases in Series A. In Series B 15.8 per cent showed infiltration of the bladder and 7 per cent vesicovaginal fistula. The range of involvement of the bladder, especially vesicovaginal fistula, varies in different series. Williams[10] found 75 per cent bladder invasion and 34 per cent vesicovaginal fistula. On the other hand Faerber[11] found only 10 fistulae in 150 autopsy cases.

In both series we found a large number of lesions which had extended to the intestines. The total number of rectal lesions inclusive of fistulae in Series A was 21.1 per cent, whereas in Series B it was 40.4 per cent. In the former, rectovaginal fistula occurred in 6.7 per cent and in the

latter in 14 per cent. In other series fistulous formation varies considerably—from Bekman's [12] series of 6 per cent to Faerber's series of 30.7 per cent.

Intestinal obstruction occurred in Series A in 12.1 per cent and Series B in 12.3 per cent. The large number of obstructive lesions have interested us for some time and have been reported elsewhere.[13] It seems surprising that our study was the first in the English literature when one considers the high incidence of this complication. The only comprehensive study of the subject available previously was that of Halter.[14] The neglect of this phase is probably accounted for by its unimpressive clinical manifestations. Tumor spreads along the uterosacral ligaments, constricts the rectum and low grade intestinal obstruction ensues. The symptoms associated with it are very vague and the obstruction often is not recognized. Intestinal obstruction was the immediate cause of death in 6.7 per cent of cases in Series A and 7.4 per cent in Series B, a fairly close agreement.

Spread may also occur to the bones of the pelvis, as indicated in a previous communication.[15] This has been stressed by Philipp,[16] Traube[18] and others. Philipp believes that this is frequent and states that it occurs in 8 to 10 per cent of his cases under treatment. The process begins as an erosion along the iliopectineal line, extends over the wing of the ilium, then to the pubis and back to the sacrum. We found one case in Series A and two in Series B. In the former it was not a true extension but secondary spread from an enlarged iliac node. We ascribe its infrequent occurrence to the adequate radiation delivered over the entire bony pelvis.

DISTANT METASTASIS

In far advanced cases distant metastases are seen with a fair amount of regularity. Thus Feilchenfeld[19] in 1902 found distant metastasis in 28.2 per cent, Andreizen and Leitch[20] in 1906 in 20.4 per cent and Williams in 1908 in 20.2 per cent. The percentage of distant metatasis in Series A and B were 25.7 per cent and 25 per cent respectively.

The two series were compared as to five frequent sites of distant metastasis and Series A and B were found to have the following incidence: liver 10.8 and 19 per cent, lung 8.2 and 9 per cent, pleura 5.4 and 5 per cent, peritoneum 9.3 and 5 per cent and bone 5.4 and 7 per cent. These figures coincided fairly closely with autopsy statistics from other authors.

We have been particularly interested in metastatic bone involvement and have encountered this at Charity Hospital seven times. One of these cases has been mentioned already. Four of these cases occurred in Series A and three in a clinical series. In a review of the entire available literature we found that the majority of distant metastases involve the lower extremities. In a group in which the spread was by way of the lymphatics the lumbar vertebrae were most frequently eroded from lateral lumbar nodes. Recurrences in this area may be present even with adequate radiation to the pelvis and at the present time there is no effective method for dealing with this type of recidivation.

SUMMARY

Seventy-four cases of carcinoma of the cervix coming to autopsy at the Charity Hospital of Louisiana are analyzed and contrasted with a group of 57 necropsies previously studied at the University of Minnesota.

It is pointed out that local spread occurs predominantly in the lateral direction, but that the neoplasm also extends in the sagittal plane in a substantial proportion of the cases. The consequences of neoplastic involvement of the pelvic organs are indicated, and the incidence of metastasis to extra pelvic organs is briefly stated. The current plans of treatment are inadequate in controlling sagittal pelvic spread.

In reviewing this material one is impressed with the consistency that obtains in the involvement of certain organs, indicating fundamental biologic regularities in the growth pattern of the neoplasm. It is hoped that more careful analysis of the lesions

will redound to the benefit of the patient by permitting a more rational attack on the disease.

REFERENCES

1. Pearson, Bjarne: Factors in the cause of death in carcinoma of the cervix, Am. J. Cancer, 28:31, 1936.
2. Kundrat, R.: Ueber die Ausbreitung des Carcinoms im Parametranen Gewebe bei Krebs des Collum Uteri, Arch. f. Gynäk, 69:355, 1903.
3. Sampson, J. A.: A careful study of the parametrium in 27 cases of carcinoma cervix uteri and its clinical significance, Am. J. Obst., 54:433, 1906.
4. Baisch, K.: Der Werth der Drüsenausraumung bei der Operation des Uterus Carcinoms, Arch. f. Gynäk, 75:273, 1905.
5. Von Rosthorn quoted by Pearson, Thesis Univ. Minn., 1932.
6. Pankow, Ibid.
7. Schottländer, J., and Kermauner, F.: Zur Kenntnis des Uterus Carcinom, Berlin, 1912.
8. Brunet, G.: Ergebnisse der Abdominalen Radikaloperation des Gebärmutterscheiden Krebses Mittels Laparotomia Hypogastrica, Ztschr. f. Geburtsh. u. Gynäk., 56:1, 1905.
9. Scheib, A.: Klinische und Anatomische Beitrage zur Operativen Behandlung des Uterus Carcinoms, Arch. f. Gynäk., 87:1, 1909.
10. Williams, R.: The Natural History of Cancer, Baltimore, William Wood and Co., 1908.
11. Faerber, H.: Woran sterben die nicht Operierten bzw. rezidiv gewordenen Uteruskarzinomkranken? Ztshr. f. Geburtsch. u. Gynäk., 99:213, 1931.
12. Bekman, V. G.: Einige klinische Beobachtungen über Uteruscarcinom, Ztshr. f. Geburtsh. u. Gynäk., 45:492, 1901.
13. Pearson, Bjarne, and Garcia, Manuel: Intestinal obstruction as a phase of carcinoma of the cervix, Surgery, 11:636, 1942.
14. Halter, G.: Anatomishe und functionelle Veranderungen des Rectums beim Collumcarcinom. Arch. Gyn., 151:126, 1932.
(15) Pearson, Bjarne, and Garcia, Manuel: Skeletal involvement in carcinoma of the cervix uteri (in press).
16. Philipp, E.: Röntgenologische Darstellung von Knockenkrankungen beim Uterus Karzinom und ihr Verlauf, Zentralbl. f. Gynäk, 56:45, 1932.
17. Norgaard, F.: Knogledestructioner ved Cancer coll. Uteri—ved directe Propagationen ved Lymfogen og ved haematogen Metastaserung, Nordisk. Medicin, 7:1271, 1940.
18. Traube, K.: Zur Frage der Knocken Metastasen nach Colum-Karzinom, Zentralbl. f. Gynäk, 57:2909, 1933.
19. Feilchenfeld, A. A.: Krebsstatistik, Inaug. Diss., Leipzig, 1901.
20. Andriezen, W. W., and Leitch, A.: Cancer of uterus, vagina and vulva, Arch. Middlesex, Hosp. London, 7:165, 1906.

DISCUSSION

Dr. Peter Graffagnino (New Orleans): I am glad to have had the opportunity of listening to this paper. We all know that cancer is definitely on the increase and cancer salvage is still pitifully low. If this paper accomplishes the purpose of bringing to the attention of all men who practice medicine the fact that cancer spreads laterally by hematogenous as well as lymphatic avenues, it will prove of value to a great many women with cancer of the pelvis.

The greatest advance made in treatment of cancer of the cervix in the last ten years is the recognition by surgeons that, primarily, surgery plays no part whatsoever in its treatment. Until we know more about the etiology of cancer there is only one accepted method of treatment of cancer of the cervix today, and that is adequate irradiation. The earlier the discovery of cancer, naturally the greater chances of cure. Its treatment is predicated on extensive and adequate irradiation: by this is meant not less than 5,000 milligram-hours of radium application to the cervix and vault of the vagina and uterus, and not less than from 10,000 to 14,000 units of radiation. If the surgeon is convinced that surgery is indicated, he should wait until the patient has had adequate irradiation before removal of the uterus because in so doing, he removes the only effective avenue for radiation that the patient has.

In the treatment of fundal carcinoma, surgery plays a minor part only. Here again, when a diagnosis is made, do not immediately remove the uterus because if this is done, the patient is deprived of at least 30 per cent of her chance for recovery. Carcinoma of the fundus is not a surgical case per se: it should be treated by radiologic methods, externally and internally, and the uterus removed if possible, subsequently. Where it is impossible or not feasible to remove the uterus, radiation therapy must be relied upon.

Dr. Woodard Davis Beacham (New Orleans): This lucid, thorough, sincere presentation of Drs. Pearson and Garcia deserves especial commendation. The motive which prompted a pathologist and a radiologist, mutually interested in the other's field, to conduct such an investigation is more than merely noteworthy. They proposed to study the "life cycle of the disease" in order that therapeutic and prophylactic measures might be improved or initiated. Evaluating the progress which has been made in the management of uterine cervical malignancy, they have set forth in an attempt to ascertain facts which would be beneficial in preventing and/or treating metatases.

Proper emphasis has been placed by them on the subject of urinary tract involvement. And, in this connection it is interesting to note that it was only about two and one-half years ago that we began cystoscoping routinely these cases at the Charity Hospital of Louisiana at New Orleans, and to the essayists we give due credit for their efforts in this direction. At that institution today every patient given x-ray or radium therapy for cancer of the genital tract receives adequate urologic scrutiny—a very important step.

Too, they discuss the importance of intestinal complications. Writing in the April issue, 1942 of Surgery, Gynecology, and Obstetrics, Cutler, of Chicago, states that he has encountered two examples of "postradiation intestinal obstruction resulting from benign stricture of the intestine", and he mentions the observations of Jones, of Cleveland, who reported seven cases.

As a result of the studies of Drs. Pearson and Garcia there shines another ray of hope for individuals with advanced uterine malignancy, victims who have been classified in the past as "too far gone" and the family told "there is no need even to try treatment."

You have noted that this pathological Damon and radiological Pythias do not bemoan the fact that less than 7 per cent of cervical carcinomas seen by them can be clinically graded as I and that more than 70 per cent must be recorded as stages III or IV. They fully realize that there are no "early" signs of symptoms of cancer from these patients' point of view. Every patient with a beginning cancerous lesion of the cervix is not lucky enough to experience bleeding which proves distressful to her and which results in an immediate examination by her physician. Nor are some of these individuals fortunate enough to be seen by physicians who have the inclination of "cancer consciousness." Let us hope that the day is not too distant when every single woman over thirty years of age and every married one will be given the benefit of careful gynecologic examination at least twice each year. It seems trite to say that in order for one properly to examine the cervix uteri one must thoroughly inspect that structure, using a good light and removing cervical secretion. We must keep in mind the words of Novak, "From a clinical standpoint the early, favorable cases are characterized by a gross picture which does not in any way suggest the traditional picture of cauliflower growth, or of an excavated ulcer. As a matter of fact, the lesion in these early cases is clinically only suspicious in appearance, and the diagnosis can be made only on biopsy and microscopical examination." We firmly believe that it is far better to biopsy a "suspicious-looking" cervix and get a "negative" report than it is to fail to employ that simple procedure and to wish a few weeks or months later that we had consulted the pathologist.

In conclusion, I wish to state that just as pathologic consultation aids us greatly, so should we seek expert radiologic advice in the management of these cases. In the event of "cure" there is always glory for all concerned and if the worst comes to pass there is surely more than enough grief to go around.

Dr. Manuel Garcia (In closing): Our intention in making this study has been to gain a better knowledge of the pattern of spread of the tumor, in order to plan measures that may be more successful in the future management of advanced cases. We know that it is useless to hope for early cases, in the majority of instances, so our efforts should be directed towards more effective control of the advanced cases.

CHEMOTHERAPY IN THE DIGESTIVE TRACT*

J. ARNOLD BARGEN, M. D.†
ROCHESTER, MINN.

Chemotherapy is an age-old method of treating disease among human beings. Many substances have been used as chemical agents. Through the years, however, in spite of the profusion of agents available or suggested, physicians have only rarely been able to rely on chemotherapeutic agents as the sole measures of therapy. Additional supportive measures usually are necessary to turn the tide of a severe disease toward recovery. Perhaps the outstanding examples of the value of a combination of suitable chemical therapeutic agents are those drugs which are commonly used against infections caused by the *Endamoeba histolytica*. Without any additional supportive treatment, nearly all instances of amebiasis can be controlled or perhaps cured by the properly timed administration of the correct combinations of specially compounded preparations of ipecac, arsenic and iodine.

There has been a constant search for a chemotherapeutic agent which would heal the inflamed bowel with or without the employment of supportive agents. Most physicians have tried or have seen tried such agents as tincture of iodine, arsenic, bismuth, the disodium salt of 2.7-dibrom-gamma-hydroxymercuri-fluorescein (mercurochrome), acriflavine, silver nitrate, gentian violet, calcium salicylate, and a host of others. Most physicians, also, have thought they have seen beneficial effects result from the use of such agents in selected cases. Yet, when series of cases actually were analyzed, it was found that none of these drugs benefited more than a few patients.

As a result of these experiences, the advent of the sulfonamides has been viewed with mixed feelings of hope and skepticism. The appearance of the sulfonamides stimu-

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 28, 1942.

†From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

lated the hope that patients who had various types of ulcerative intestinal lesions might obtain more rapid deliverance from their sufferings than they had previously experienced. In some instances this hope was realized. I propose to summarize briefly our experiences with the various sulfonamides in the treatment of several ulcerative intestinal diseases at the Mayo Clinic.

ULCERATIVE COLITIS CAUSED BY VENEREAL LYMPHOGRANULOMA

This type of colitis results in dense inflammation of the wall of the distal segments of the large intestine and infiltration of the perirectal tissues. Obviously, then, drugs must be used which will not only cover and penetrate the surface of the rectum but will also reach the tissues around the bowel as well. At first it was the practice to administer sulfanilamide orally in doses of from 50 to 75 grains (3.2 to 4.9 grams) a day for three or four weeks. Toward the end of this time, in some cases, a most striking transformation in the proctoscopic appearance of the lesions occurred. Frequently, however, the disease process promptly returned within a few weeks after cessation of administration of the drug. The daily use of sulfanilamide retention enemas (60 grains or 4 grams) has resulted in complete healing of the proctitis within several months' time. A combination in which the drug has been administered by mouth and by rectum has yielded better results than the use of either method alone.

Sulfathiazole also has been used with success. The inguinal type of venereal lymphogranuloma in particular has responded well to the administration of 1.5 gram of sulfathiazole three to five times a day for three weeks, followed by the giving of 1 gram three to five times a day for another three weeks. In many cases proctitis and early formation of stricture have yielded readily to such treatment. The presence of more marked strictures will, of course, extend the treatment. In such a case the drug should be administered in courses; that is, it should be given for two or three weeks; then the patient should be allowed a rest of a week; then the drug should be given again.

The administration of sulfaguanidine in doses of 10 grams daily for several months has been associated with progressive improvement in the local lesion, as well as with general improvement in the condition of the patient. The number of rectal discharges has decreased from 15 to 20 a day to about two to six, and bleeding has been stopped. The rectal stricture has been known to become softer and the adjacent rectal wall has become thinner and more pliable.

Thus, in this most intractable of all intestinal lesions some advances have been achieved that heretofore have not been obtained by any other form of therapy.

ULCERATIVE COLITIS (A LATE PHASE OF BACILLARY DYSENTERY)

In this condition, also, various preparations of sulfonamide have been used. Sulfaguanidine has potent antibacterial properties, is soluble in water and is poorly absorbed from the gut. The drug should be administered in doses of 1 gram every two hours, or 2 grams every four hours, so that a total of at least 12 grams is given each 24 hour period. It is well to administer the drug for two weeks, to allow the patient a rest of a week, and to repeat administration for a second two weeks, provided that untoward effects have not occurred during administration of the drug.

Sulfadiazine and sulfathiazole also have been found to be effective against this form of ulcerative colitis.

During the second week of administration of the drug, the frequency of passage of stools usually will be reduced, bleeding will become less or will cease altogether, and the patient will begin to feel much better.

TUBERCULOUS COLITIS

Some of the drugs of the sulfonamide series have had experimental and clinical trial against tuberculous colitis as well as against other forms of ulcerative colitis. Among the drugs that have been administered more recently with some success to modify, inhibit and prevent tuberculosis in

guinea-pigs are sulfanilamide, sulfapyridine, azosulfamide, promin and others. Promin (p, p'-diaminodiphenyl-sulfone-N, N'-didextrose sulfonate) has been particularly efficacious in preventing and modifying favorably the course of tuberculosis experimentally produced in guinea-pigs. Consequently, this drug has been administered, under carefully controlled conditions, to some human beings who have tuberculosis. It can be administered orally, subcutaneously, intramuscularly or intravenously. The dosage for oral use has ranged from 1.2 gram to 3.2 grams a day, but as much as 16 grams a day has been given parenterally. The drug is highly soluble and a 40 per cent aqueous solution can be administered readily. The only toxic effect of the drug (and one which demands great caution in the use of it) has been the development of a hemolytic type of anemia. Such anemia may become very profound, but apparently occurs largely when the drug is administered orally. As yet it is not possible to predict what place this or other drugs of this series will have in the control of tuberculosis, but early results of trial offer some encouragement.

STREPTOCOCCIC (THROMBO-ULCERATIVE) COLITIS

Patients who have this form of ulcerative colitis represent by far the largest group of those who have so-called chronic ulcerative colitis. In fact, in one series of 1,573 patients suffering from ulcerative colitis who came under our observation consecutively at the Mayo Clinic in the years 1925 to 1931, inclusive, the condition of 871 was of the streptococcic type.

The treatment of this most intractable disease has been detailed repeatedly. The drugs mentioned near the beginning of this paper all have had ample trial in the treatment of this disease. Again, I wish to emphasize the fact that drugs of the sulfonamide series have an additional value, so to speak, in the treatment of this form of colitis. A number of them received their initial trial in this disease. While I was in London in the fall of 1936, Dr. Philip Manson-Bahr spoke to me of the hydrochloride of 2:4-diamino-azobenzene-4-sulfonamide (prontosil) in the treatment of various streptococcic diseases. It was thought then that such a drug might be useful in the treatment of thrombo-ulcerative colitis. Not until the fall of 1937, however, was any such drug available in the United States. After preliminary trial of a number of the drugs of the series, the disodium salt of 4-sulfamido-phenyl-2' azo-7' acetylamino-1' hydroxynaphthalene - 3:6'disulfonic acid (neoprontosil) was found to be eminently suitable for this form of colitis. Its wide limits of safety and relative lack of toxicity, its moderately rapid excretion from the body and its possession of an action apparently in addition to that of sulfanilamide were established early. As experience with the drug increased and confidence in its relative lack of toxicity became established, its use was extended to include patients whose condition was more refractory. To date this drug has proved to be the most helpful of the sulfonamide preparations used in this form of colitis. Several hundred patients have obtained striking and lasting benefit from its use alone, or by its addition to other measures of therapy found helpful in the past, such as serums, vaccines, transfused blood, liver extract, and others.

It is customary to administer from 50 to 90 grains (3.2 to 5.8 grams) of the drug each 24 hour period, giving 10 to 15 grains (0.65 to 1 gram) at a dose, every four hours of the 24. The drug is administered for two weeks; the patient then is allowed a rest of a week, and then he receives it for another two weeks.

The fact should be mentioned here in that the huge, sloughing lesions of the skin, of the nature of pyoderma gangraenosum, occurring occasionally in advanced thrombo-ulcerative colitis, also have receded and healed after the administration of the drug by mouth.

Another drug which has proved helpful in some of these cases is sulfaguanidine, administered in doses of 8 to 16 grams in divided doses, each 24 hour period. A similar period of rest to that allowed for patients receiving neoprontosil has been found

advisable. In table 1 is an illustrative example of the effect of its use.

Sulfathiazole administered in the usual amounts also has proved valuable in some of these cases.

The most recent drug which bids fair to be of help to some patients seriously ill with this disease, particularly when other drugs have been ineffective, or when it is desired to use a well-tolerated drug which can be given in rather large amounts, or when patients become sensitive to other forms of sulfonamides, is succinyl sulfathiazole. It has been said that this drug can be given on the basis of 0.25 gram per kilogram of body weight each 24 hours, but smaller amounts have been found to be effective. I have administered 1.5 gram every four hours for several weeks with marked relief of symptoms and without the production of toxic effects. A patient who had passed a half bedpanful of bloody pus 10 to 15 times each 24 hours has passed discharges free from blood within five to six days after the institution of treatment with this drug, with marked reduction in the amount of discharge from the bowel and in frequency of passage.

It is to be hoped that ultimately some drug of this series will be available which will be even more effective than those which have already had ample trial.

REGIONAL ULCERATIVE COLITIS

There is a segmental form of ulcerative colitis which resembles in many respects so-called regional ileitis. Perhaps a better term, and one which includes segmental inflammatory disease of any portion of the intestine above the sigmoid would be "regional enteritis." It can be said that, utilized at the proper time, surgical resection of the ulcerated segment of bowel is the treatment of choice, but this form of colitis will not in every case lend itself to the application of surgical procedures. In some cases this form of colitis has responded very satisfactorily to drugs of the sulfonamide series. To date sulfaguanidine seems the drug of choice in these cases.

COLITIS OF UNKNOWN ETIOLOGY

In many cases ulcerative colitis differs markedly from the forms described in the foregoing categories, in the gross appearance of the lesions observed through the proctoscope, in their roentgenologic manifestations, in their clinical course, and in failure to find any pathogenic forms of bacteria or other organisms either in the lesions themselves or in the rectal discharge of the patients. The function of this presentation is not to discuss the details of a differential diagnosis of the various forms of ulcerative colitis, for it is likely that the syndrome under consideration herein may include several unrecognized etiologic factors, but rather to discuss one measure of therapy.

In some cases, likewise, patients have responded to the administration of one or more of the sulfonamide preparations. It is in these cases, particularly, that no single measure of therapy has sufficed. Many supportive therapeutic agents have been found helpful for these patients. Among the sulfonamide drugs, sulfaguanidine has proved to be particularly efficacious, and for some the combined use of two of the sulfonamide drugs has been worth while. To some very ill patients I have administered 45 grains (3 grams) of sulfathiazole and 90 grains (5.8 grams) of sulfaguanidine each 24 hours, in divided doses, with striking remission of symptoms when other forms of treatment proved ineffective. The thought had occurred to me that perhaps some of these drugs exerted a synergistic effect upon each other.

DIVERTICULITIS

During the active stage of diverticulitis, when there is marked swelling and tenderness of the involved segment of bowel, the administration of sulfaguanidine in doses of 12 to 16 grams a day, administered in such a manner that the patient receives 2 or 3 grams approximately every four hours, seems to have materially shortened the attack of diverticulitis. Occasionally, all the viable organisms of the *Escherichia coli* group can be eliminated from the intestinal tract by the administration of large amounts of this drug, and although the organisms may return promptly after discontinuance of use of the drug, this temporary

approach to sterilization seems to be helpful.

PERFORATING CANCER

Early hopes that the employment of sulfaguanidine would be a great aid in the preoperative preparation of the average patient suffering from cancer of the colon have not been borne out. When such cancers have perforated, however, and the patient has fever, a tender mass, and all the concomitants of such a condition, the judicious administration of sulfaguanidine, before surgical intervention, has been of material help.

GENERAL CONSIDERATIONS

The nature of lesions in which improvement is to be anticipated: It is hardly to be expected that any chemotherapeutic agent will restore to normal the physiologic function of a bowel which has been scarred and has become contracted and deformed by disease of long standing. Obviously, under such circumstances all that any such drug can be expected to accomplish is control of symptoms that are caused by active infection; those symptoms which result from altered function of a deformed bowel must be expected to continue to disturb the patient.

Good results from the use of these drugs should be directly proportional to the activity of a given infectious process, the acuteness of the symptoms, the brevity of the history, and the lack of permanent damage to the bowel. If these considerations are kept in mind, improvement of patients who have ulcerative intestinal disease is expected to result from the proper drug administered at the most suitable time.

Concentrations of sulfonamides in the blood stream: The fact that the sulfonamides are potent drugs, associated with deleterious effects to the human body if they are administered in amounts greater than those required for therapeutic effects, should always be kept in mind. For this reason, careful studies of the chemistry of the blood must always accompany the therapeutic administraion of the sulfonamides. Values for hemoglobin, red and white cells must be followed. Furthermore, the concentration of the various drugs required in the blood for therapeutic effect varies greatly, both in the matter of the patients receiving them as well as in the matter of differences in the several drugs employed. For the average patient a concentration of 3.5 mg. of neoprontosil per 100 c. c. of blood is effective. The same can be said for sulfaguanidine. However, for sulfanilamide, sulfathiazole and sulfadiazine, concentrations of 8 to 10 mg. of the drugs per 100 c. c. of blood will be required for effectiveness. A concentration of about 5 mg. of succinyl sulfathiazole per 100 c. c. of blood seems effective. All these figures are average, and in some cases much lower concentrations have been found necessary for therapeutic results.

Toxic effects of sulfonamides: It would hardly be necessary to detail herein the symptoms which result from the use of too much of any of these drugs; that is, headache, nausea, dermatitis, indigestion, vomiting and hematuria. It does seem wise, however, to offer a word of caution concerning the administration of large amounts of the drugs. Some people are very sensitive to these drugs. An occasional patient will be overcome by marked nausea produced by only one tablet of sulfathiazole. I have seen a shock-like phenomenon follow the taking of two tablets of sulfadiazine, and severe generalized dermatitis result from the use of three tablets of sulfaguanidine. Consequently, at the Mayo Clinic we have adopted the practice of giving very small initial test doses to patients who have never had any of the drugs. Occasionally, too, a patient may tolerate the first course of the drug well, but on the first day of the second course may exhibit severe toxic symptoms. Hence, it is well to initiate the second course with very small amounts of the drug.

SUMMARY

We have tried to evaluate our knowledge of the use of sulfonamide preparations in ulcerative intestinal disease. It must be remembered that no attempt has been made to discuss the treatment of these conditions in detail, but that only one agent of therapy

has been considered and an attempt made to establish its place in the treatment of ulcerative intestinal disease. No doubt the experience herein recorded will be different a few years from now for new drugs are constantly brought forth, and successive ones frequently are better than their predecessors.

TABLE 1
RESULTS OF TREATMENT OF PATIENTS WHO HAD CHRONIC ULCERATIVE COLITIS

	Sulfaguanidine alone used			Sulfaguanidine & other therapy		
	Colitis, group 1, streptococcic					
	Mildly active	Moderately active	Severely active	Mildly active	Moderately active	Severely active
Clinically arrested (remission)	1	2	1	1	1	3
Markedly improved	..	1	..	3	2	..
Moderately improved	1	..	2	..	1	5
Slightly improved	..	..	..	..	..	1
Unimproved	1	2	3	..	..	1

DISCUSSION

Dr. Donovan C. Browne (New Orleans): Probably my few remarks should be best put on the negative or cautious side. We, as physicians, are always trying to find some particular drug which is a panacea in every entity which we encounter. I notice it has brought about a little unpleasant situation at times in that we lose sight, as Dr. Bargen brought out in the beginning of his paper, of diagnostic factors. I have seen patients starting with diarrhea and without rime or reason other than a number of loose stools, the physician immediately starts with one of the group of sulfonamides, trying therapeutic measures without actually making a diagnosis. Let us not get too far from the fundamentals of diagnosis and get to the therapeutic side before we find out what we are dealing with and also let us not forget what Dr. Bargen stressed here, that chemotherapeutic agents are only one of the measures. Let us not pass over things tried and found not wanting. These measures that we have employed should be balanced, even in well diagnosed cases.

There was one point in his statement of the per cent of ulcerative colitis in his group—you must remember that Dr. Bargen's particular set-up makes it likely that he has such a high per cent of ulcerative colitis cases which probably you and I, in practice, do not run across, so we should not jump at conclusions and go on the percentage as he outlined here.

The final point here is the poor result that some of us get is based on too small a service. We have one patient and if we do not get good results with a certain drug in a very short time we are ready to condemn it and pass on to the next fancy that comes along. In that way we are liable to pass up very good therapeutic agents. Only then, with analysis of cases as we have seen here this afternoon and a large series, can accurate conclusions be drawn or helpful therapeutic armamentarium stressed. No one should start using the sulfone group until he is in a position to control the complications which might arise.

Dr. A. A. Herold (Shreveport): Like Dr. Browne, I fully appreciate the measures which Dr. Bargen brought to us, which is welcome information. I was especially interested in two of the drugs that he mentioned; one of them is promin and the other sulfasuxidine. Last year at Cleveland, two men from the Mayo Clinic presented a paper before the A. M. A. on work with promin in tuberculosis, in which very satisfactory results were reported; guinea-pigs were inoculated with living tubercle bacilli and given promin in sufficient quantity and survived; those sacrificed for autopsy, three weeks later, showed that fibrosis had taken place in areas of infection, instead of the caseous degeneration that is usually found. It would be wonderful if the time would come when, after making a diagnosis of tuberculosis of the intestinal tract, there could be made a promise of cure by simply giving promin, but recent inquiry from Parke-Davis & Company brings out the information that this preparation is not yet ready for the market, due to its toxicity for which it is now being tested.

Sulfasuxidine is very promising for sterilizing the intestinal tract, as mentioned by Dr. Bargen. In fact, according to an article published recently in Archives of Surgery, it was stated that the rate of absorption of this preparation is fifty times slower than sulfathiazole; in other words, after giving 50 grams for an intestinal condition, the blood percentage would not be any higher than that after one gram of sulfathiazole. I would like Dr. Bargen to tell us what size doses he gives to obtain the percentage he mentions and also tell us more about this chemical. Sharp & Dohme, who have put it out experimentally, say it will be ready for the market soon.

Dr. John H. Connell (New Orleans): I just wish to mention a few things which might be of considerable interest to the more rural physician, especially in Louisiana. Several years ago in a pediatric series at the Huey P. Long Hospital at Pineville, where we had a great number of upper respiratory infections, along with children undergoing great malnutrition and anemia, it was our custom routinely to examine the stools. We found, after treatment of the upper respiratory system with sulfathiazole, those infants—about 45 per cent of the children on the service—had parasites of various kinds. After three or four days' use of the drug these were eliminated from the gastrointestinal tract. In a series of several hundred

cases there were very few in which the parasites were not completely eliminated.

We found sulfadiazine efficacious in the treatment of cases of hookworm and other parasites, without upper respiratory infection, in 75 per cent of the cases, if given in a sufficiently large dosage over a period of ten days or two weeks. The parasites were eliminated and it was thought safer than the more drastic drugs. We found in the other 25 per cent that sulfathiazole in most instances, if given, will control, if not completely eliminate the parasites in the bowel.

Another observation—we had a rather severe epidemic of nonspecific enteritis in infants, which occurs in a great number of hospitals. I have seen, in Charity Hospital in New Orleans, several years back, complete wards cleared out over a period of a few days. We had an experience of that in Pineville about nine months ago and at that time used sulfaguanidine in large quantities and the mortality rate was nil.

Dr. J. Arnold Bargen (In closing): We have been using the promin in an experimental way for quite a long time, but the evidence of what it will do in humans is still inconclusive. When one tries a drug like this in a disease such as tuberculosis, the best results should be anticipated in the early cases. Experimental studies offer encouragement for the future so far as this drug is concerned.

Concerning succinyl sulfathiazole we can probably use larger doses than we are using at present. We are giving about 1½ to 2 grams every two or four hours. We have given it to only 12 individuals and it is a little early to draw any conclusions. Patients receiving it had tried other sulfonamides before and had toxic effects or no effects from the others. The experimental evidence suggests that we might give 0.25 grams per kilo of body weight.

FEEDING INFANTS*

CHESTER A. STEWART, M. D.†
NEW ORLEANS

The feeding of infants requires the exercise of special attention designed to promote the continuance of maternal nursing and to supply indispensable nutrients in exceptionally liberal quantities.

Perhaps the commonest feeding problem encountered during early infancy results from the assumption that breast milk is deficient in quality and quantity. This assumption is favored by the tendency displayed by many infants to cry excessively and to suck their fists; by the mother's inability to distinguish the cry of hunger from that of other distresses; by the comments of friends who often suggest some fault in the quality of the breast milk, and by the mother's confirmatory observation that her milk appears blue and watery. These and numerous other factors often combine to undermine the mother's confidence in her capacity to nurse her baby successfully and tempt her to solve her problem by resorting to the use of artificial formulas.

Under these circumstances the continuance of maternal nursing is strongly favored provided the infant's gain in weight is found to be normal and the mother is assured that her milk is normal in appearance and the baby's restlessness at night can be relieved by the administration of mild sedatives such as chloral hydrate or phenobarbital.

If, however, the infant has failed to make a normal gain in weight the supply of breast milk is obviously inadequate, and under these circumstances the baby must receive additional food. Ordinarily this problem is solved by offering liquid milk formulas by bottle, but unfortunately this procedure soon results, in many instances, in a gradual decline in the vigor with which the infant nurses at the breast. The resultant incomplete drainage of the breast progressively diminishes the quantity of milk it secretes, thus mixed breast and bottle feeding commonly leads to weaning from the breast in a relatively short period.

Since the consumption of semi-solid foods seldom diminishes the infant's willingness to drain the breast completely, the continuance of maternal nursing is strongly favored if appropriate moderately thick preparations, fed by spoon, rather than liquid

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 27, 1942.

†From the Department of Pediatrics of the Louisiana State University School of Medicine and the Charity Hospital of Louisiana, New Orleans.

formulas fed by the bottle, are used in the early weeks of life to compensate for varying degrees of deficiency in the supply of breast milk. Various commonly used liquid milk formulas can be converted with ease into suitable semi-solid preparations by cooking cereal in them.

When used adequately in conjunction with breast feeding, the cereal thickened formulas compensate for deficiencies in the supply of the mother's milk; they are tolerated well as early as the third day of life; they provide additional milk; and they are taken readily by spoon. Young infants are inclined to use the tongue to push spoon fed food forward out of the mouth, but in a comparatively few days, this reflex is replaced by the more mature act of swallowing. When this adjustment has been made babies usually prefer rapid rather than slow spoon feeding.

During the period the baby is being trained to take a semi-solid food, it is preferable to offer the cereal thickened formula immediately before each breast feeding. Later, however, this order of feeding may be reversed, particularly if the consumption of large quantities of semi-solid food tends to diminish the vigor of nursing. Obviously the amount of cereal thickened formula offered per meal should vary according to individual requirements.

During the past fifty years the diets recommended for infants and children have been greatly liberalized in America. At the turn of the century infants were fed almost exclusively on milk throughout the first year of life, and during the second year, fruit juices and fruits, eggs, vegetables and meat were added cautiously and sparingly to the diet. At that time acute gastrointestinal disease in artificially fed infants was the leading cause of death. The milk available on the market was inadequately refrigerated and was rarely pasteurized. It was teeming with bacteria and the dirt, hair, manure and other filth it contained were grossly visible in glass milk bottles. During the nineties physicians were probably unduly inclined to attribute many acute gastrointestinal disturbances to the harmful effects of various constituents of cow's milk, particularly to its protein. They were convinced of the necessity of varying the percentage of protein, fat and carbohydrate in cow's milk according to the age, assumed needs, and special requirements of each infant, and this conviction resulted in an elaborate percentage method of feeding. Furthermore the physicians of that day observed an increase in the incidence of scurvy following the use of sterilized food, and they lacked precise information as to how the disease may be prevented.

In view of the situation that existed fifty years ago, it is not surprising that physicians of that period were inclined to defer the introduction of foods other than milk into the infant's diet until after the first year of life was completed. But the advances that have been made during the past half century have permitted a remarkable liberalization of the diets of infants and children.

The general plan now in use at the Louisiana State University School of Medicine for adding different foods to the diets of infants who are receiving liberal quantities of breast milk is as follows:

AGE IN MONTHS	FOODS USED IN ADDITION TO NURSING
0-1	Fruit juices and cod liver oil, or their equivalents.
3	Different cooked cereals with salt and sugar added according to taste.
4	Crushed peas, carrots, spinach, ripe banana.
5	Boiled egg yolk, additional crushed (unstrained) vegetables, and fruits.
6	Whole egg, custard, sardines in oil, creamed tuna, salmon, shrimp.
7	Ground beef, fowl, liver, additional vegetables and fruits.
8	Start weaning; give boiled cow's milk.
9½-10	Wean; give three meals daily and a mid-afternoon lunch.

Since infants thrive when appropriate semi-solid foods are incorporated into the diet at an early age, and since subsistence on multiple overlapping sources of essential nutrients safeguard nutrition, we are now using the following more liberal diet either when the infant is only partially breast fed or it is totally fed on artificial foods.

AGE IN MONTHS	FOODS ADDED
0-1	Breast milk if available, plus cereal thickened formula; otherwise, cow's milk formula, plus cereals, also cod liver oil and orange juice or their equivalents.
1-2	Crushed peas, carrots, boiled egg yolk, applesauce, prunes, banana.
3-4	Creamed tuna, salmon, shrimp, sardines in oil, liver soup, whole egg, custard, tapioca, potato, cauliflower, asparagus, tomato, string beans, vegetable soup.
4	Ground beef, fowl, liver, beets, spinach, eggplant, cabbage, beets, peaches, apricots.

Continuance of this program of periodically adding new food items as age advances results in the provision of a very liberal diet early in life. It will be noted that we are offering moderately coarse vegetables, crushed with a fork rather than strained, but creamed tuna fish, salmon and shrimp with a white sauce to facilitate the swallowing of foods which otherwise tend to lodge and accumulate in the roof of the mouth of the young infant.

Apparently the early introduction of a wide variety of moderately coarse (unstrained) foods into the diet is advantageous in several respects. This policy acquaints infants at an early age with the majority of the important flavors and aromas they are apt to encounter during life, and this use of crushed rather than strained vegetables and fruits accustoms them to swallow moderately coarse particles of food. These accomplishments are of value in that they tend to eliminate the inclination displayed by many babies to gag, to vomit, to refuse food, to acquire aversion to certain foods, and to develop anorexia either when foods with unfamiliar flavors and aromas are introduced into the diet or when a transition from finely strained to coarse chopped foods is undertaken relatively late in infancy.

In addition to promoting good eating habits which tend to persist, the introduction of a wide variety of semi-solid foods into the diet at an early age provides multiple overlapping sources of known and unknown essential nutrients. Continuance of this policy provides young children with a diet which corresponds closely with that preferred for older children which includes the following foods for daily consumption.

1. Milk and dairy products.
2. Vegetables.
3. Cooked and fresh fruits.
4. Eggs.
5. Meats.
6. Cereals.
7. Cod liver oil.

SUMMARY

I wish to stress a few points which seem to be important. Since mixed breast and bottle feeding favors premature weaning from the breast, the routine use of cereal thickened formulas, fed by spoon to young babies for the purpose of compensating for varying degrees of deficiency in the supply of breast milk, is recommended. This alternative for complemental bottle feeding does not discourage the continuance of maternal nursing.

The introduction into the diet of a wide variety of appropriate semi-solid foods at an early age is also recommended. This practice establishes excellent eating habits, which tend to persist. In this manner the early use of a liberal diet favors the prevention of two very prevalent conditions found in children, namely anorexia and aversions to certain foods. The liberal diet also supplies multiple overlapping sources of known and unknown essential nutrients. Fortunately, young infants take semi-solid foods readily, and experience no appreciable gastrointestinal or allergic disturbances from the consumption of appropriate foods which contraindicate their use.

EPIDEMIOLOGY OF ENDEMIC TYPHUS FEVER IN THE SOUTHERN UNITED STATES*

WILLIAM R. WHITEHOUSE, M. D.
NEW ORLEANS

HISTORIC SKETCH

The recorded history of endemic typhus fever in the United States is restricted to the relatively short period of the last forty-

*Thesis winning the Walter Reed Memorial Medal of the Louisiana State Medical Society presented to a Senior student of the Tulane Medical School.

odd years, and in postulating its primary entrance into the United States it is necessary to consider the early history of epidemic, or old world typhus, in this country. The relationship of the two types has not been accurately determined, and the endemic variety has only recently come to be recognized as a disease entity. Nixon, in his "Century of Medicine in San Antonio", described a disease occurring in the Spanish occupation days of the late 18th century which could well have been, and most probably was, epidemic typhus. In 1836, there was an epidemic of typhus in Philadelphia, and it was there that Gerhard differentiated, both clinically and pathologically, between typhus and typhoid fever. One of the most widely accepted dates of primary entrance of classical typhus into the United States is 1846, shortly after a famine in Ireland, at which time Irish immigrants are said to have firmly established the disease in this country. The introduction of the disease into port cities along the southern Atlantic and Gulf coasts may have been from Europe, as well as from Latin America.

Since 1892, typhus fever in the United States has been mainly of the endemic variety. In that year the last epidemic occurred in New York and eight of the twelve attending doctors at Bellevue Hospital contracted the disease and died. In 1910, Nathan E. Brill, of New York, called attention to a disease clinically resembling typhoid fever, but without the positive Widal reaction. He hesitated to identify it as typhus because of its generally milder course, and its occurrence under circumstances which were different from those usually associated with the disease. He accordingly believed that he was dealing with a new clinical entity, "an infectious disease of unknown etiology." From the description of the cases in Brill's original article, and from subsequent findings, it appears that his cases were endemic typhus. In 1912, Anderson and Goldberger were successful in the inoculation of monkeys with blood from a case of Brill's disease, and they found that, as in Mexican typhus, one infection rendered the monkeys immune to subsequent inoculations of the same passage virus. Furthermore, monkeys previously infected with Mexican typhus were thereafter immune to Brill's disease, and vice versa. These observations were later confirmed, and it was concluded that Brill's disease was identical with typhus fever.

A conspicuous landmark in the modern history of the disease was the work of K. F. Maxcy, who in 1926 established the fact that endemic typhus was not associated with lice, and suggested that there was a rodent reservoir for the disease, a rat ectoparasite being the vector. This work was actually confirmed by R. E. Dyer, in 1931, who showed that the rat flea, *Xenopsylla cheopis*, could carry the etiologic agent of endemic typhus; in 1932, Dyer demonstrated that the multiplication of the virus took place in the flea, and that the flea was not simply a mechanical vector. Since Brill's original article, murine typhus has been shown by numerous investigations to be a widespread disease, increasing in incidence and thus a major health problem.

It is of interest to mention the work of Hans Zinsser who, in 1934, stated that having investigated over five hundred cases of Brill's disease in New York and Boston, was forced to the conclusion that the disease was an imported form of the classical European typhus fever. He concluded that the cases observed represented recrudescences of old infections originally acquired in European foci as much as 25 or 30 years before. The view implies the premise that the etiologic agent, once acquired, remains latent for many years in infected individuals, and may become active in these persons under conditions of fading immunity. Today, relatively few of those studying typhus fever accept Zinsser's views, and the ultimate solution of this question awaits a more thorough study of cases in the New England States, especially as to their occurrence in native born Americans.

THEORIES OF CONTINUANCE

In the past several years much has been written and many ideas have been ex-

pressed in an attempt to explain successfully the continuance and spread of typhus fever. At the present time there are two theories which have major support. One theory holds that epidemic and endemic typhus are separate and distinct, and that neither depends upon the other for perpetuation. This conclusion would imply that, regarding the epidemic variety, there are present continuously, mild and unrecognized but probably louse-transmitted cases which serve as starting points for epidemics when crowding and filth are of a sufficiently high degree. This theory would necessarily mean that the endemic variety exists as a separate disease which never becomes conspicuous except under heavy rat and flea concentrations, with a concurrent infection of the rats with rat typhus. Cases of the murine variety among human beings would then be mere incidents in the history of a rat disease, and would have no part in the formation of classical epidemics since fleas are not believed to transmit the disease from man to man. The other theory attempting to relate the two diseases is, that typhus is a disease of rats which is occasionally passed to man by rat fleas; that when such flea-transmitted cases occur among people who are louse-infested and of low economic standard, the disease may become epidemic in character by establishing the louse-cycle transmission. It is not known at the present time which theory is true; however, evidence has accumulated which tends to support the last mentioned theory.

ECOLOGY

The causative agent of epidemic typhus has been shown to be *Rickettsia prowazeki*, first described by Ricketts in 1910, and named by da Rocha-Lima in 1916. Extensive studies by Mooser and others have revealed the association of such *Rickettsia* with endemic typhus fever.

In the scale of microorganisms, *Rickettsia* are separate from bacteria, on the one hand, and viruses on the other. The *Rickettsia*, often improperly referred to as "virus", are pleomorphic microorganisms, usually seen in short bacillary or diplo-bacillus form, which may look like minute coccobacilli or appear as longer, straight or curved filaments which approach in size the smaller bacteria. The *Rickettsia* are non-motile, and are well stained by Geimsa's stain, taking on a faint purplish tinge. Repeated experimentation has shown they cannot be successfully cultivated outside of the body except in tissue cultures containing living cells, and that in the body of the host they grow intracellularly. Up to the present time, many of the authorities have felt that it was reasonable to assume that, as a class, *Rickettsia* were originally insect parasites which came to mammals, and eventually to man, through the mediation of blood sucking insect vectors.

In 1931, Dyer and later others, reported in detail the successful experimental transmission of endemic typhus from rat to rat by means of the tropical rat flea, *Xenopsylla cheopis*. As has been shown by Ewing, this flea occurs not only at seaports in the United States, as in Savannah and New Orleans, but also in the Northern and inland States. *Xenopsylla cheopis* serves as a suitable vector, for it can live for forty days or longer when its food supply is derived from a rat, and more than thirty days when fed on human blood. Chick and Martin concluded from their experiments that this flea is the main species which when hungry readily bites man. This is important since Fox observed that the marked increase in fleas per rat recorded in the autumn months, is altogether made up of an increase in this flea which so readily acts as a good vector. The failure to recover the typhus *Rickettsia* from fleas, hatched from eggs of typhus-infected fleas, suggests that the probable mechanism by which the flea transmits typhus is directly from rat to man, through the scratching or rubbing of infected flea feces into the skin. This is supported by the work of Mooser and Castañeda who found that the salivary glands and ducts, and the reproductive organs were free of *Rickettsia*, explaining the failure of earlier efforts to transmit typhus by the bite of infected fleas. Nicolle and others have suggested that *Rickettsia prowazeki* may be passed out in the dejecta of the flea, and in

the urine of rats and other animals, causing contamination of food and the production of the disease when such food is eaten. The exact route of the infection is not known, but this is of little importance since we know the flea is the chief offender. The *Rickettsia* are relatively long lived within the infected flea, having been shown to be virulent for at least fifty days after the last infective feeding. In considering other vectors in the rat to rat transmission, it was shown that another flea, *Ceratophyllus fasciatus*, transmitted the disease experimentally. The rat mite, *Liponyssus bacoti*, has been suggested as a vector of the disease, and also the rat louse *Polyplax spinulosus* has been found infected. With the exception of *Xenopsylla cheopis* the several vectors studied in the laboratory seem of little actual importance. *Polyplax spinulosus*, important in spreading the disease from rat to rat is not important for transmission to man since lice are notably host specific. Zinsser has shown that the typhus *Rickettsia* will remain alive in the tick, but this, as other possible vectors, such as the chicken flea, remain secondary in importance to the tropical rat flea.

Although a number of wild rodents, namely, the woodchuck, house mouse, meadow mouse and the white footed mouse, can serve as reservoir hosts, the most important at present is the brown rat, *Rattus norvegicus*.

PREVALENCE

From the very beginning of its history, workers with endemic typhus have repeatedly observed the summer and fall incidence of the disease, in direct contrast with the winter and spring incidence of epidemic typhus, this seasonal variation corresponding to the time when rat fleas are most prevalent in the southern United States. One of the most interesting phases of endemic typhus, and one as yet unexplained, is what appears at first to be a racial immunity for the negro, since the attack rate in the white population is from five to eight times greater than that in the colored population. This may be a real difference; however, it must be remembered that upon the basis of medical neglect, as well as other factors, certainly many more cases are missed in the negro than in the white. Some postulate that this lower incidence is only a manifestation of acquired immunity from unrecognized cases which occur in childhood, these being known to be quite mild. The peak of incidence is attained at the 29-39 year period, and diminishes with age, but it is apparent that certainly there is no age immunity in this disease. Males have been shown to be attacked about twice as frequently as females, and this is most readily explained upon the basis of the greater chances of exposure in the male. The disease, an indoor disease, in shops, groceries, cafes, and warehouses, is chiefly observed in middle class workers, but is found in all levels of society.

Prior to 1931, recognition of endemic typhus by physicians was limited, and State Health Departments had only recently begun to employ the Weil-Felix reaction routinely on blood submitted for the diagnosis of febrile diseases.

In the past few years, there has been an increase in the frequency of recognition of this disease, and there is evidence that this is an actual increase in the number of cases. Musser stated that in 1937 only two cases were diagnosed in the Charity Hospital of New Orleans whereas two years later he personally saw 16 cases. This is true of the situation at many other hospitals in the Southern states, and certainly there is no reason to suppose that in those two years physicians suddenly acquired the ability to diagnose typhus fever.

In the past ten years, the number of cases in all affected states has consistently increased, with the exception of Virginia and Maryland, which reported a decrease; however, it is felt that this is due to the fact that before 1930 there was a failure to differentiate typhus from Rocky Mountain spotted fever in those two states, thus showing a false incidence now corrected (see table). There was a definite drop in 1934 and 1935 in the number of reported cases following rat extermination campaigns in Georgia, Alabama and Texas, and this also

NUMBER OF CASES OF ENDEMIC TYPHUS RECORDED WITH THE UNITED STATES PUBLIC HEALTH SERVICE, 1928 THROUGH 1941.

STATE	'28	'29	'30	'31	'32	'33	'34	'35	'36	'37	'38	'39	'40	'41
North Carolina	.....	3	16	6	24	46	23	51	33	70	89	122	65	77
South Carolina	1	5	22	13	24	54	38	57	57	101	146	232	132	105
Georgia	48	57	238	127	308	625	414	485	815	1046	956	1129	584	936
Florida	49	48	39	28	42	54	35	27	55	121	116	153	114	192
Tennessee	2	2	.....	1	2	1	.....	8	27	22	24	100	36	45
Alabama	59	72	67	80	239	823	287	294	369	480	353	472	289	299
Mississippi	.....	.....	.....	.....	.....	1	.....	5	6	15	25	49	51	81
Louisiana	.....	1	.....	1	17	11	18	20	12	23	27	117	118	193
Texas	3	8	13	43	227	398	496	276	327	453	497	538	410	733
Total in U. S. A.	196	239	510	332	955	2069	1392	1287	1732	2393	2294	2998	1882	2780

suggests that the reported increases in the other years were not due entirely to increase in recognition. In regard to the drop in 1935, it is interesting to note that in 1934 there was also a decrease in reported cases in North Carolina, South Carolina and Florida, so that other factors may have been partly responsible.

Public Health records have shown that 90 per cent of endemic typhus cases reported in this country occur in Alabama, Georgia, and Texas. The northern limit of the disease has been found to change year after year until at the present time the line is well above central Tennessee, and cases have been discovered much farther north.

The factors which cause and retard the spread of endemic typhus are not clear, but the common rat and the rat flea are certainly most important. The limits of the disease occurrence are more restricted than the distribution of the rodent, but the limiting factor may be the distribution of *Xenopsylla cheopis*. Fox noted that in Savannah, Georgia, the marked increase in fleas per rat in the autumn months is made up of an increase in this tropical rat flea which has proved to be such an efficient vector.

It is a well known principle in epidemiology that there must be the right combination of "seed," "sower," and "soil" for a disease to appear, and certainly many factors such as numbers of vectors, reservoir hosts, and climate, make conditions more suitable for the endemicity of the disease in the Southern states.

To support this, Fox showed *Xenopsylla cheopis* to be the predominant rat flea present during every month of the year in New Orleans, while in Northern cities the flea appeared in greater numbers only during a few months of the year. He also found that in New Orleans the average number of fleas per rat was consistently high, as compared with average numbers in New York and Boston. It is also felt that temperature and humidity of the Southern states are more ideal, and are important factors in the average numbers of fleas per rat. Survey of early Annual Reports of the Surgeon General of the United States Public Health Service suggest a gradual increase in the average number of fleas per rat but this information is incomplete and the subject awaits further study, such as that being begun in New Orleans, before one might correlate this increase with that of reported typhus fever. In considering the distribution of murine typhus in the general population, it has been shown to be chiefly a disease of small villages and towns with a questionable tendency to spread from urban to rural areas. This rural spread is possibly explained by increasing acreage planted in food crops in the Southern states, and increasing storage of food stuffs on the farms, which was seen to a much less extent prior to 1929.

Before 1930, Alabama appears to have had the most extensive continuously endemic area, but since that time the area of greatest incidence has become continuous with strips extending westward to join the Texas area, southward into Florida, and a broad strip of counties extending through Georgia and the Carolinas. An increase in rat population has been noted in numerous places coincident with the appearance or

increase of typhus, and it is felt that the relatively recent increase in truck transportation has greatly facilitated the spread of the rodents, consequently their disease. The direct migration of rats from town to town along highways and through the fields is a slower process, but undoubtedly occurs, and furnishes an opportunity for the field mice and other susceptible rodents to become reservoirs of the disease.

PREVENTION

This *Rickettsial* disease presents many theoretical and practical problems which makes it one of the most complex of the infectious diseases of man. Endemic typhus presents problems of prevention and control because of the many possible vectors and reservoirs for the *Rickettsia*. The chief focus of preventive methods is naturally directed toward the elimination of the *Rickettsia* by destroying the rodents that harbor the microorganisms and nurture the vectors. Accumulated data indicate that complete eradication of reservoir hosts is not necessary and that moderate control of rats will result in the control of endemic typhus. As in the control of any disease, sufficient epidemiologic investigation is necessary, with this, education is most important to secure the interest and confidence of the people. With proper publicity, public enthusiasm may reach a point to initiate the adequate garbage removal and clean up the premises. It is necessary to remove rat harborage, such as trash heaps, before beginning the rat extermination program in areas known to be foci from previous investigation. Red squill is widely used in combination with fresh hamburger, and the poisonous bait is placed in rat runs, burrows, or in areas known to be infested. Rat proofing is the final, and of course the only permanent measure of protection. This involves the separation of rat and man, and applied to buildings, rat proofing consists of eliminating the ingress or egress ports of rats, or the enclosed spaces that might serve as sites for hiding or nesting. A second choice is vent stoppage which involves the closure of all outside openings that allow rats into buildings, and the utilization of poisoning or trapping to eliminate the rats blocked in the building following the stoppage of all sites of exit.

With rare exception, typhus produces in the affected individual a lasting immunity, and numerous efforts to confer artificially such an immunity have been made. The first efforts were made with live *Rickettsia*, combined with live *Rickettsia*-convalescent serum, but these failed. Since the mixture could not be satisfactorily titrated, some of the reactions were far too severe to justify the use of living vaccines as a prophylactic measure in non-epidemic periods. The greatest success has been with killed vaccines, the chief difficulty thus far being to secure a sufficient quantity of a potent vaccine. In recent months, great strides have been made in the tissue culture of the *Rickettsia*, some of the most prominent work being done by Castañeda and by Cox. The former has produced a vaccine from the lungs of infected animals which he has shown to produce immunity in human beings, and the latter has produced a potent vaccine made from *Rickettsia* developed in large numbers in the yolk sac of the embryonic chick. The Cox vaccine is at the present time being administered extensively, but along with other vaccines awaits trial before worthwhile conclusions can be drawn as to its ultimate value.

SUMMARY AND CONCLUSION

While the origin of endemic typhus fever in the United States is a matter of speculation, it is known to be continued in rats and spread by rat fleas, from rat to rat and occasionally to man. It is not known whether a patient with endemic typhus may start a louse born epidemic. Only within the last few decades has endemic or murine typhus come to be recognized as a disease entity, related, if not identical, to Brill's disease. The brown rat and the tropical rat flea are mainly responsible for the extension of the disease, although several other potential rodent reservoirs and suitable vectors exist.

Within the last 15 years, the incidence of typhus fever in the Atlantic and Gulf states has increased. Nearly 60 per cent of the counties in these states reported cases since

1922, and of eight Southern states, South Carolina is the only state which did not show a rise in 1941, over the previous year. The fact that endemic typhus has increased in incidence and appeared in new cities far from its earlier habitat, indicates its increasing importance as a public health problem; thus rat control becomes of paramount importance. The danger of the extension of endemic typhus northward to the larger cities where the louse is more common, is not a theoretical one. Louse-borne typhus is not a danger at the present time, as long as the economic and thus sanitary status of our city and rural population is maintained. At the present time it should be remembered that throughout the centuries, the disease has been associated with war, famine, economic stress, and a break down of the sanitary dam built against all diseases, especially typhus fever.

ACKNOWLEDGEMENTS

The author wishes to express his grateful appreciation to Dr. R. E. Dyer, Director of the National Institute of Health for reading the manuscript and for valued suggestions in the preparation of this paper; to members of the Departments of Tropical Medicine and Preventive Medicine, The Tulane University of Louisiana, School of Medicine, for many helpful services relative to the procurement and organization of these data.

BIBLIOGRAPHY

1. Anderson, J. F., and Goldberger, J.: Collected studies on typhus, Hyg. Lab. Bull. No. 86, 1912.

2. Badger, L. F.: Endemic typhus in the United States, South. M. J., 27:159, 1934.

3. Bowdoin, C. D., and Boston, R. J.: A preliminary report on the practical epidemiology and control of endemic typhus fever in Georgia, Am. J. Trop. Med.. 20:537, 1940.

4. Blatteis, S. R.: Endemic typhus fever (Brill's disease). A report of 138 cases. Med. Clin. N. A., 11:1099, 1928.

5. Boston, R. J.: Advances in methods of murine typhus control, Am. J. Pub. Health, 31:720, 1941.

6. Blumer, G.: Rickettsial diseases, with reference to those of importance along Atlantic seaboard, Bull. New York Acad. Med., 17:280, 1941.

7. Bohls, S. W.: Typhus fever in Texas, South. M. J., 28:1162, 1935.

8. Brill, N. E.: A study of seventeen cases of a disease clinically resembling typhoid fever, but without the Widal reactions, New York State J. Med., 67:48, 1898.

9. Dyer, R. E., Rumreich, A., and Badger, L. F.: Typhus fever virus of typhus type derived from fleas collected from wild rats, Pub. Health Rep., 46:334, 1931.

10. Dyer, R. E., Badger, L. F., and Rumreich, A.: Typhus Rocky Mountain spotted fever group in United States, J. A. M. A., 97:589, 1931.

11. Dyer, R. E., Ceder, E. T., Rumreich, A., and Badger, L. F.: Typhus fever: rat flea, *Xenopsylla cheopis*, in experimental transmission, Pub. Health Rep., 46:1869, 1931.

12. Dyer, R. E.: Experimental transmission of endemic typhus fever of United States by rat flea (*Xenopsylla cheopis*), Pub. Health Rep.,46:2415,1931.

13. Dyer, R. E., Badger, L. F., Ceder, E. T., and Workman, W. G.: Endemic typhus fever of United States; history, epidemiology and mode of transmission, J. A. M. A., 99:795, 1932.

14. Dyer, R. E., Ceder, E. T., Rumreich, A., and Badger, L. F.: Endemic typhus fever of United States, J. Infect. Dis., 51:137, 1932.

15. Dyer, R. E., Workman, W. G., Rumreich, A., and Badger, L. F.: Preparation of vaccine from fleas infected with endemic typhus, Pub. Health Rep., 47:1329, 1932.

16. Dyer, R. E., Workman, W. G., Rumreich, A.: Experimental transmission of endemic typhus fever of United States by rat flea *Ceratophyllus fasciatus*, Pub. Health. Rep., 47:931, 1932.

17. Dyer, R. E.: Multiplication of virus of endemic typhus in rat flea *Xenopsylla cheopis*, Pub. Health Rep., 47:987, 1932.

18. Dyer, R. E.: Transmission of endemic typhus by rubbing either crushed infected fleas or infected flea feces into wounds, Pub. Health Rep., 47:131, 1932.

19. Dyer, R. E.: Typhus and Rocky Mountain spotted fever in the United States, Mil. Surgeon, 72:421, 1933.

20. Dyer, R. E.: Effect of flea passage on epidemic typhus virus, Pub. Health Rep., 49:224, 1934.

21. Dyer, R. E.: Typhus and Rocky Mountain spotted fever in the United States, Harvey Lect., 1933-1934, pp. 41-66, 1935.

Dyer, R. E.: Diseases of typhus group in North America, Canad. Pub. Health, J., 28:1, 1937.

23. Dyer, R. E.: Endemic typhus fever, Pub. Health Nursing, 32:664, 1940.

24. Dyer, R. E.: Mass immunization against typhus fever, Ann. Int. Med., 15:629, 1941.

25. Dyer, R. E.: Charles Franklin Craig lecture for 1940: The control of typhus fever, Am. J. Trop. Med., 21:163, 1941.

26. Fox. C., and Sullivan, E. C.: Rat survey, Pub. Health Rep., No. 1039, 1909-1934, September 11, 1925.

27. Fox, C.: A limited rat flea survey of Savannah, Georgia, Pub. Health Rep., 46:574, 1931.

28. Gordon, J. E.: The Clinical Features of *Rickettsial* Diseases, Virus and *Rickettsial* Diseases, Cambridge, Harvard University Press, p. 828, 1940.

29. Hinman, F.: History of typhus fever in Louisiana, Am. J. Pub. Health, 26:1117, 1936.

30. Kemp, H. A.: Endemic typhus fever in Texas, Am. J. Trop. Med., 19:109, 1939.

31. Lewis, S. J.: Endemic typhus fever in southwest Texas, South, M. J., 28:1150, 1935.

32. Maxcy, K. F.: Clinical observations on endemic typhus (Brill's disease) in southern United States, Pub. Health Rep., 41:1213, 1926.

33. Maxcy, K. F.: Epidemiological study of endemic typhus fever (Brill's disease) in southeastern United States, Pub. Health Rep., 41:2967, 1926.

34. Maxcy, K. F.: Typhus fever in the United States, Pub. Health Rep., 44:1735, 1929.

35. Meleney, H. E.: Recent extension of endemic typhus fever in southern United States, Am. J. Pub. Health, 31:219, 1941.

36. Mooser, H., Castañeda, M. R., and Zinsser, H.: Rats as carriers of Mexican typhus fever, J. A. M. A., 97:231, 1931.

37. Mooser, H., Castañeda, M. R., and Zinsser, H.: The transmission of the virus of Mexican typhus from rat to rat by *Polyplax spinulosus*, J. Exp. Med., 54:567, 1931.

38. Mooser, H., and Castañeda, M. R.: Multiplication of virus of Mexican typhus fever in fleas, J. Exper. Med., 55:307, 1932.

39. Pinkerton, H.: Criteria for the accurate classification of the *Rickettsial* diseases and of their etiological agents, Parasitology, 28:172, 1936.

40. Reece, C. D.: Typhus fever in Texas, Texas State J. Med., 30:192, 1934.

41. Tucker, C. B., Woodring, T. V., Essick, H. C.: An outbreak of typhus fever in Nashville, Tennessee, Am. J. Pub. Health, 31:917, 1941.

42. Wolbach, S. B., Todd, J. L., and Palfrey, F. W.: The Etiology and Pathology of Typhus, Cambridge, Harvard University Press, 1922.

43. Zinsser, H.: Method of obtaining large amounts of *Rickettsia prowazeki* by x-ray mediation of rats, Proc. Soc. Exper. Biol. & Med., 29:840, 1932.

44. Zinsser, H., and Castañeda, M. R.: Active and passive immunization in typhus fever, Proc. Nat. Acad. Soc. 20:9, 1934.

45. Zinsser, H.: Recent advances in study of typhus fever, New England J. Med., 216:449, 1937.

46. Zinsser, H.: Varieties of typhus virus and the epidemiology of the American form of European typhus fever (Brill's disease), Am. J. Hyg., 20:513, 1934.

47. Zinsser, H.: The *Rickettsial* diseases, varieties, epidemiology and geographical distribution, Am. J. Hyg., 25:430, 1937.

—o—

A CLINICO-PATHOLOGIC STUDY OF RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE IN THE WHITE AND NEGRO RACES

FRANCIS E. BRUNO, M. D.†
AND
HUGO T. ENGELHARDT, M. D.†
NEW ORLEANS

In the past, investigations[1, 2] have disclosed the greater prevalence of organic heart disease in the negro as compared to the white race. Many authorities[3, 4, 5] have statistically demonstrated that the mortality rate from heart disease in the negro is markedly higher than in the white. It is also a well known observation by physicians who see large numbers of colored patients that morbidity from heart disease is greater in these patients. Negro cardiacs, like negro diabetics[6] tend to die at an earlier age than white patients who have similar diagnoses.

It is accepted by most clinicians that the three chief etiologic causes of heart disease in the negro race are hypertension, arteriosclerosis and syphilis. Because of the relative rarity of rheumatic heart disease in the South the statistical surveys of the etiology of organic heart disease differ from those of other parts of the United States. In the consideration of comparative surveys of organic heart disease in the negro and the white races, hypertension, arteriosclerosis,[7] syphilis,[12] and coronary[8] occlusion have been dealt with in detail. However, discussion of rheumatic fever as an etiologic cause of organic heart disease has been limited in the majority of articles, because the number of patients in most series[1, 2] suffering from this type of heart disease was too small to justify conclusions regarding the influence of race on the morbidity or mortality of this etiologic type. On the other hand other authors have felt that the negro possesses a certain degree of racial immunity, to explain the lower incidence of rheumatic fever in negroes reported in this series. Houston,[9] in an analysis of all cases of rheumatic fever admitted to Charity Hospital over the period January 1, 1922-1926, found 88 cases in 115,213 admissions. Thirty-nine per cent of these were colored, and 61 per cent were white. However, he noted that the clinical severity of the disease was no less in the negro than in the white. Wood[10] et al. studied the incidence of rheumatic heart disease in a hospital where negro admissions comprised one-third of the total. They were able to find 12 colored patients suffering from rheumatic fever in a total of 177 cases. Laws[7], in a survey of 438 patients, found that rheumatic heart disease comprised only 4.3 per cent of all organic heart disease in the white. Hedley,[11] in a study of heart disease in the hospitals of Washington, D. C., found that rheumatic heart disease caused 17 per cent of the deaths from heart disease in white patients and only 8.3 per cent of the cardiac deaths in the negro. He concluded that this ratio corroborated the general observation that rheumatic heart disease is more common in the white race.

Stone and Vanzant,[5] in a survey of heart disease in a hospital in Galveston, Texas, found that 77.6 per cent of rheumatic heart disease occurred in white persons, while 22.4 per cent occurred in negroes. They concluded that the negro was less susceptible to rheumatic heart disease.

Gager and Dunn,[12] in a study of 1200 unselected cases of structural heart disease in the District of Columbia, found that rheu-

†From the Department of Medicine, School of Medicine, Tulane University of Louisiana, and Charity Hospital of Louisiana, New Orleans.

matic heart disease was somewhat more prevalent in the white race, being 7.2 per cent of all organic heart disease as against 4.7 per cent of the total in the negro.

This conception did not coincide with our impression gained in observing patients in the clinics and wards of Charity Hospital. Therefore, we felt that survey of clinical data and autopsy material from a large southern hospital would throw light on this subject. Charity Hospital affords an ideal opportunity for the analysis of such a problem since the ratio of white and negro admissions is almost one to one.

The material for this study was obtained from an analysis of the discharge diagnoses of 187,987 patients during the period January 1, 1939 through 1941. The autopsy data were derived from postmortem in the interval 1927 through 1941. In this period there was a total of 16,121 necropsies.

Chart 1.

TOTAL HOSPITAL ADMISSIONS*

	White	Colored
1939	33,621	28,235
1940	33,797	32,473
1941	27,742	32,119
TOTAL	95,160	92,827
	92,827	
	187,987	

*Figures supplied by Charity Hospital.
Total autopsies.
From 1927-1941, 16,121.

Harrison and Levine,[13] in their study of the regional distribution of rheumatic fever and rheumatic heart disease in the United States, found that from the interval 1916-1923 inclusive, a total of 53,057 patients were admitted to the Charity Hospital in New Orleans. Among these 149 cases were listed as rheumatic fever.

We have been able to accumulate 150 cases of acute rheumatic fever in the interval 1939-1941, from a total of 187,987 admissions, an incidence of 0.08 per cent (see charts 1 and 2). In this period we had a combined total of 875 cases of acute rheumatic fever and rheumatic heart disease, active and inactive. Thus acute rheumatic fever was only 17 per cent of all cases of rheumatic infection admitted to Charity Hospital.

Forty-four per cent of the 150 cases of acute rheumatic fever were negro and 56 per cent were white. In this group there were three white and three negro deaths. The average age of whites with acute rheumatic fever was 16 1/3 years and the average age of negroes admitted in the acute stage was 18 1/3 years.

In the same interval a diagnosis of rheumatic heart disease was made in 725 instances (chart 3). Three hundred seventy-four cases, or 51 per cent, occurred in the white race; 351 cases, or 49 per cent, occurred in the negro. Three hundred eighteen patients suffered from active rheumatic heart disease. These showed an equal distribution, there being 159 cases in the negro and 159 cases in the white. Cases of inactive rheumatic heart disease composed a total of 407 patients. Of these 215 or 52.5 per cent were white, and 192 or 47.5 per cent were colored.

Our figures would then indicate that at least in New Orleans, there is no significant racial difference in the incidence of acute rheumatic fever and rheumatic heart disease.

The total number of cases of rheumatic carditis was 725, showing an overwhelming preponderance of carditis in this series.

Chart 2.

ACUTE RHEUMATIC FEVER*

	White			Colored		
	No. of Cases	Deaths	Av. Age	No. of Cases	Deaths	Av. Age
1939	19	0	17	20	1	18
1940	42	3	16	28	2	20
1941	23	0	16	18	0	17
	84—56%			66—44%		
				84		
				150		

Chart 3.

RHEUMATIC HEART DISEASE ACTIVE*

	White			Colored		
	No. of Cases	Deaths	Av. Age	No. of Cases	Deaths	Av. Age
1939	53	11	26	45	4	27
1940	61	6	22	51	9	24
1941	45	8	25	63	6	22
	159—50%			159—50%		
	159					
	318					

RHEUMATIC HEART DISEASE INACTIVE

	White			Colored		
	No. of Cases	Deaths	Av. Age	No. of Cases	Deaths	Av. Age
1931	57	11	31	54	11	30
1940	72	10		65	7	29
1941	86	15		73	7	26
	215—52.8%			192—47.2%		
	192					
	407					

*Figures supplied by Charity Hospital.

This disparity[14] has been commented upon by other authors.[5] It would appear then, that acute rheumatic fever in the South does not have the typical characteristics of the northern disease. We feel that the rheumatic state in the South is a chronic systemic disease often of an insidious onset with relatively mild exacerbations, but which nevertheless follows a progressive course to a deforming valvulitis and cardiac failure.

AUTOPSY DATA

In the interval, January 1, 1927 through 1941, there were a total of 16,121 postmortems at Charity Hospital. In this period we were able to find 102 cases of rheumatic heart disease. Of the 102 autopsy cases, 46 were white and 56 were colored. It is interesting that no white person under the age of 10 who came to autopsy in this period showed evidences of rheumatic heart disease. On the other hand, two negro males and six negro females under ten years had anatomic lesions consistent with this diagnosis. Thirty-four of the 56 colored patients showing rheumatic heart disease at necropsy were under 40 years of age, while only 15 out of 86 whites were in this age group.

The distribution of the valvular lesions was not remarkable. In 45, or 46 per cent, of the autopsied cases the mitral valve alone was involved, The aortic valve showed rheumatic lesions in nine cases or 8.8 per cent; combined lesions involving the aortic and mitral valves occurred in 37 individuals or 34.3 per cent. In two instances both the mitral and tricuspid valves were involved, and in one case the pathologic changes were in the mitral, tricuspid and pulmonary valves.

An interesting observation was that there were eight cases which presented associated luetic cardiovascular disease. All of these occurred in colored patients. Five or 4.9 per cent of these patients had a definite syphilitic aortitis. The three others, or 2.9 per cent had an aortic regurgitation as a result of luetic involvement of the valve cusps. The majority of these patients had been diagnosed as luetic heart disease clinically. The average age of this group was 46 years, two were females and the remainder males. White[15] states that luetic aortitis complicated less than 1 per cent of the patients in his series. Our figures of 4.9 per cent can be explained by the fact that negroes composed over 50 per cent of our cases. There were 19 instances in the autopsy series with pericardial involvement of which 11 were varying degrees of adhesive pericarditis.

Coronary occlusion was found in six cases. The average age of this group was 51.6 years. Three of the patients were white

females, two were white males and one a colored male 36 years old in whom the occlusion was due to an associated syphilitic aortitis.

There were 16 instances of infarction of the lung, 15 renal, six splenic, three hepatic and two cases of cerebral infarction. These figures do not include the cases of bacterial endocarditis which showed multiple embolic lesions.

In view of the fact that there is evidence to show that the hemolytic streptococcus is of etiologic significance in both rheumatic fever and glomerulonephritis we were interested in determining their co-existence in the autopsy series. Of the 102 cases there were two instances of acute glomerulonephritis, one of which occurred in a 25 year old white male with a well established mitral stenosis. The other was the case of an 11 year old white male who was experiencing acute rheumatic fever in the classical sense. There was one case of subacute glomerular nephritis in an 18 year old female with gonococcal septicemia. In addition three of the cases showed pathology consistent with the diagnosis of chronic glomerulonephritis. It is of interest to note that some observers[16, 17] have felt that nephritis might be an expression of rheumatic fever. Wilson,[18] however, feels that renal changes that have been described are forms of glomerulonephritis without peculiar characteristics. Apparently climate has no effect on the incidence of acute glomerulonephritis as has been claimed for other diseases attributed to the streptococcus.[19]

Cases have been described in which venous thrombosis has occurred associated with round cell infiltration of the vessel wall.[20] In our autopsy series there were six cases complicated with thrombosis. Five were observed in old rheumatics. One was seen in the acute stage and presented thrombosis of the right jugular vein. The other sites of thromboses were the left common iliac in one instance, and the left subclavian axillary and internal jugular vein. There were two cases of thrombosis of the pulmonary artery, one of which was associated with thrombosis of the right renal artery. All of these latter patients were white and thus we exclude the possibility of sickle cell anemia.

In the 102 proved cases of rheumatic heart disease which came to autopsy there were seven cases of subacute bacterial endocarditis and two cases of acute ulcerative endocarditis, one of which was due to gonococcal septicemia. Three of the cases with subacute bacterial endocarditis were colored, the other patients were white. The average age of these colored patients was 17.3 years. The average age of the white patients was 38.6 years. In view of the small number of patients this certainly does not indicate the true age incidence of these complications but it is worthy of note.

SUMMARY

A study of the discharge diagnoses of 187,987 case histories in the three-year period, 1939 through 1941, revealed 150 cases of acute rheumatic fever, an incidence of 0.08 per cent. Forty-four per cent of these were negro and 56 per cent were white. In this interval there were 725 instances of rheumatic heart disease. Fifty-one per cent of these occurred in the white race, 49 per cent in the colored. There was no appreciable racial difference in active and inactive rheumatic heart disease.

Autopsy data obtained from 16,121 postmortems were studied. In the 102 cases of rheumatic heart disease found, 46 were white and 56 were colored. These statistics suggest that negro patients suffering from rheumatic heart disease tend to die at an earlier age than do the white patients.

REFERENCES

1. Schwab, E. H., and Schultze, V. F.: The incidence of heart disease and other etiological types in a southern dispensary, Am. Heart, J., 7:223, 1931-32.

2. Schwab, E. H., and Schultze, V. F.: Heart disease in the American negro of the South, Am. Heart J., 7:710, 1931-32.

3. Woody, W. S.: The incidence of heart disease in the negro race, Virginia M. Monthly, 50:784, 1924.

4. Holt, W. L.: A comparison of white and colored death rates in Little Rock, Arkansas, South. M. J., 19:615, 1926.

5. Stone, C. T., and Vanzant, F. R.: Heart disease as seen in a southern clinic, J. A. M. A., 89:1472, 1927.

6. Engelhardt H. T., and Bruno, F. E.: A clinicopathological study of diabetes in the South, (in press).

7. Laws, C. L.: The etiology of heart disease in whites and negroes in Tennessee, Am. Heart J., 8:608, 1932-33.

8. Burch, G. E., and Voorhies, N. W.: A study of the

incidence of coronary occlusion and angina pectoris in the white and negro races, Am. J. Med. Sci., 198:685, 1939.
9. Houston, A. N.: An analysis of 88 cases of rheumatic fever, Med. Clin. N. A., 11:1339, 1928.
10. Wood, J. E., Jr., et al.: The etiology of heart disease, Am. J. Med. Sci., 172:185, 1926.
11. Hedley, O. F.: A study of 450 fatal cases of heart disease occurring in Washington, D. C., U. S. Pub. Health Rep., 50:1127, 1935.
12. Gager, L. T., and Dunn, W. L.: Heart disease in Washington, D. C., Med. Ann. District of Columbia, 2:112, 1938.
13. Harrison, T. R., and Levine, S. A.: Notes on the regional distribution of rheumatic fever with rheumatic heart disease in the U. S., South. Med. J., 17:914, 1924.
14. Longcope, W. T.: Variations in manifestations of rheumatic fever in relation to climate, Ann. Int. Med., 5:401, 1931.
15. White, P. D.: Heart Diseases, 2nd Ed. Macmillan Co., New York, 1931. p. 244.
16. Fahn, T.: Beitrage zur Frage der Herz und Gelenkveranderungen bei Rheumatismus und Scharlach, Virchow's Arch. Path. Anat., 232:134, 1921.
17. Veil, W. H.: Die Rheumatische Infection, Deutsch. med. Wchnschr., 54:1539, 1928.
18. Wilson, M. G.: Rheumatic Fever, Commonwealth Fund, New York, 1940, p. 209.
19. Seegal, D., Seegal, E. B. C., and Jost, E. G.: A comparative study of the geographic distribution of rheumatic fever, scarlet fever, and acute glomerulonephritis in North America, Am. J. Med. Sci., 190:383, 1935.
20. Poynton, F. J., Patterson, D., and Spiven, J. G.: Acute rheumatism in children, Lancet, 2:1086, 1920.

—o—

SOME COMMENTS ON THE MEDICAL HISTORY OF LOUISIANA AS TAUGHT IN THE PUBLIC SCHOOLS

RUDOLPH MATAS, M. D.
NEW ORLEANS

At this time, when the free textbooks officially supplied by the State are being distributed to the pupils of the public schools, it would seem opportune to direct the attention of the Department of Education to, at least, some gross misstatements of facts in the official history of Louisiana which are of special concern to the medical profession. The book in question is "The Story of Louisiana," a textbook for the public schools by William O. Scroggs, sometime professor in the Louisiana State University, published by Bobbs-Merrill Company, Indianapolis, Indiana.

It is intended for students of the sixth grade, and came into existence in 1924, eighteen years ago, in the first year of Governor Fuqua's administration, and has seemingly continued as the official textbook on the history of Louisiana ever since. According to the preface, the book was "completely revised" and brought to date in 1936, the first year of the administration of Governor R. W. Leche. While this history was no doubt liberally revised and much improved in 1936, it has apparently undergone no appreciable changes or additions in the intervening and most significant six years (1936-1942). Even in the "revised" edition of 1936, there are some omissions that would seem inexplicable in the light of their importance, for instance, the death of Governor, at that time Senator, Huey P. Long, which occurred on September 10, 1935, is nowhere mentioned or the date recorded. However evident it may be that this history is in urgent need of revision if it is to be brought up to the level of contemporary history, it is my purpose to confine my commentaries and criticisms to the errors and misstatements which appear in the 52nd Chapter (the revised edition) under the title "Recent History" and "Spanish American War" (pp. 294-295) in which the epochal discovery of the transmission of yellow fever by the mosquito is briefly referred to and described.

I quote: "The (Spanish American) war lasted only four months, and none of the Louisiana volunteers took part in the fighting. Nevertheless, the conflict had important results for Louisiana and the other Southern States. While American troops occupied Havana, that city got a thorough cleaning, perhaps for the first time in its history, and was practically freed of yellow fever. It was mainly from Havana that yellow fever had been brought so often to the United States. Now the terrible disease was no longer a danger to this country.

"While they were stationed in Cuba, American physicians had a better opportunity to study the causes of yellow fever. They finally proved, after many experiments, that it was spread by a variety of mosquito. The discovery of the cause of the fever made it fairly easy to stamp it out. There are now only a few remote spots in the world where it still persists.

"When the health officers were making their tests in order to find out the cause of the disease one of their number, Doctor Walter Reed, volunteered to be bitten by a

mosquito which had previously bitten a fever patient. He contracted the disease and died, but in his death he rendered a great service to his fellow man. Louisiana, which was formerly so often scourged by this dread malady, owes a great debt to his memory."

COMMENTARIES ON PARAGRAPHS I AND II:

These statements would make it appear that Havana had been purified and freed from yellow fever by the drastic methods of municipal cleaning that General (then Major) Gorgas, Chief Sanitary Director of the Army of Occupation in Cuba, had put into practice in 1898-1899. It is true that by almost super-human efforts he had converted what was known as the "cesspool" of the Tropics into a "spotless town," the cleanest in the West Indies.

"At the end of several months of scrubbing, burning and disinfection Havana emerged something new in the history of the world." For the time being, the prevalence of yellow fever and the general mortality rate was reduced and the origin of yellow fever in filth and its control by cleanliness seemed demonstrated, with victory over Yellow Jack assured.

This triumph, however, was very short lived, for with the restoration of peace and order under the American government and the lifting of the war blockade, a great wave of native Spanish non-immune immigrants poured into Cuba, chiefly through Havana, (over 12,000 admitted between August 1 and December, 1899). Immediately the prevalence and mortality of yellow fever rose and soon attained widespread proportions, despite the drastic hygiene of Gorgas' efforts to convert Havana into a spotless town. Seldom has such a superhuman task as that accomplished by Gorgas been so inadequately rewarded. For all his labor did not have the slightest effect in preventing the disease at which it was chiefly aimed. Gorgas, himself, wrote to General Leonard Wood, "our sanitary measures for the preceding two years have been flat failures. Yellow fever at the beginning of 1901 is about as bad as it has ever been in Havana."

The "dirt" theory of yellow fever had been fully tested and fully disproved. The statement made in this official school book: "that this terrible disease was [in consequence of the cleaning of Havana] no longer a danger to this country," is not only misleading but positively untrue; for yellow fever in Havana was at its worst when cleanliness was at its best.[1, 2, 3, 4]

COMMENTARIES ON PARAGRAPH III:

The author makes no mention of Dr. Carlos Finlay, the discoverer of the mosquito transmission of yellow fever,[5-12] or of the arrival and work of the Army Yellow Fever Commission headed by Walter Reed,[13-18] appointed by Surgeon General Sternberg, with assistant surgeons, Jesse Lazear, James Carroll and Aristides Agramonte, to investigate and report on the origin and spread of yellow fever, with special reference to the claims made for the bacillus of Sanarelli as the specific cause of the disease. The textbook does not tell who the "American physicians" or "health officers" were who were making tests to find out the "cause" of the disease, and only mentions Dr. Walter Reed, "who volunteered to be bitten by a mosquito which had previously bitten a fever patient. He contracted the disease and died, but in his death he rendered a great service to his fellow man. Louisiana which was formerly so often scourged by this dread malady, owes a great debt to his memory."

The facts are: (1) That Dr. Walter Reed was never inoculated with infected yellow fever mosquitoes;[8, 9, 14, 15] (2) that he never had yellow fever;[14, 15] (3) that he was not in Havana at the time when the mosquito inoculations were inaugurated and his presence was most needed;[8, 9, 14] (4) that he was called to the United States on August 4, 1900, four days after the first conference with Dr. Carlos Finlay, who gave him and his associates all the data in regard to the transmission of yellow fever by mosquitoes, which he had accumulated in the course of twenty years that he had developed and preached the doctrine of yellow fever transmission by mosquitoes;[8, 9, 10, 14] (5) that Finlay gave the Commission the

ova and adult females of the Culex mosquito (later known as the *Stegomyia fasciata*, and now as the *Aedes aegypti*) which he had identified as the specific transmitter of the disease out of 600 different specimens of mosquitoes known to naturalists;[2, 8, 9, 10, 14] (6) that from August 4 to October 11, 1900, the experimental study of the mosquito transmission of yellow fever was carried on in Dr. Reed's absence by Carroll, Lazear and Agramonte;[8, 9, 10, 14] (7) that in consequence of the inoculations with infected mosquitoes, Carroll, sickened with yellow fever (August 27, 1900) and barely escaped with his life; Lazear, a firm believer in Finlay's teachings, was stung on September 13, 1900, and died on September 25, the first martyr of science in the field of honor; Agramonte, a native Cuban, was immune. In the course of these investigations, W. M. Dean, an incredulous soldier, who volunteered for infected mosquito inoculation (August 31, 1900) developed a typical and severe attack of yellow fever five days after he had been purposely stung with a yellow fever mosquito. While Carroll was still ill from his attack, Lazear and Agramonte cabled Walter Reed in Washington to announce that in their opinion the mosquito transmission of yellow fever, which they had looked upon with so much skepticism, was now proved true.[14, 16] When Reed returned to Cuba on October 11, 1900, he prepared a brief but world echoing preliminary report of the work of his commission at the American Public Health Association at Indianapolis, October 24, 1900. Later, he published an "additional report" in February, 1901, which completely confirmed the truth of Finlay's discovery and opened the way to Gorgas' antimosquito campaign which began on February 12, 1901, and ended in the complete extinction of yellow fever in 1902. Reed, covered with glory, returned to Washington in February, 1901, after completing the experimental work inaugurated by his associates Lazear, Carroll and Agramonte. Greatly honored and enjoying a just prestige, he continued to teach at the Army Medical School until November 17, 1902, when he was stricken with acute appendicitis, from which he succumbed five days later after an operation.[2, 13, 14, 16, 17]

By the application of Finlay's principles of mosquito extermination, so brilliantly confirmed by the Reed commission, and so successfully applied by Gorgas in Havana, New Orleans was delivered from yellow fever in 1905, and has remained free from its nefarious visitations ever since.[18, 19, 20]

The preceding statement of facts regarding the conquest of yellow fever in Cuba and the respective role of Finlay, Reed and Gorgas is based on data from authentic sources quoted in the appended references.

In passing, we should also mention the need of correcting the statement in paragraph two, quoted above, "There are now only a few remote spots in the world where it still persists." This applied to conditions 18 years ago, but is now incorrect in the light of new knowledge, for yellow fever is now known to exist in new areas, previously unsuspected, in the jungles of South America, in Brazil, Colombia and the whole of the Amazon Valley, as well as in the jungles of East and West Africa. The recently acquired knowledge of yellow fever in these countries is of great importance on account of the danger of the disease being transmitted across great areas by widespread aerial travel. It has been necessary completely to revise our laws of quarantine as applied to aviation. Methods for the careful disinfection of airplanes have been developed for the destruction of mosquitoes and other insects with culecides and other insect vectors of infectious diseases. Such facts as these show the importance of a new edition which could also include a mention of vaccination as a means of preventing yellow fever, which is now being applied through the generosity of the Rockefeller Foundation and other sanitary agencies in British, Belgian and French Africa. Vaccination against yellow fever is also being extensively used on our troops embarking for various fronts, as a protection against these infections in foreign lands.

It is only fair to mention that one line meets with our hearty approval and praise,

"Medical Science has made Louisiana a healthier place to live in," which appears on page 329. Also, we heartily approve the praise given to Dr. James W. Dupree of Baton Rouge (page 295), for his pioneer researches on the mosquito in relation to yellow fever. He was at one time president of the Louisiana State Medical Society.

While a detailed story of a great medical achievement, even though of epochal importance to this state, is not expected in a school book of this elementary type, a total misstatement of facts, as in the case of Walter Reed, is indeed deplorable, and scarcely excusable, since the true story was well known and universally accessible twenty years before the book was published in 1924.

Is it surprising, in view of the apparent ignorance and seeming indifference to historic truth displayed in a book officially designed by the State for the instruction of the youth in the public schools, that the public at large, and even the medical profession, should be so woefully deficient in the appreciation of the heroes of the conquest of yellow fever, the greatest achievement of medical science for the welfare of the people, in the history of our State?

REFERENCES

1. Wood, Leonard, Military Governor of Cuba. Civil Reports 1899-1900; 1901; 1902; Government Printing Office, Washington, D. C., 1901, 1902 and 1903, respectively.
2. Gorgas, Marie D., and Hendrick, Burton J.: W. C. Gorgas, Doubleday, New York, 1924.
3. Gorgas, W. C.: Sanitation in Panama, Appleton, New York, 1915.
4. Lampson, Robin: Death loses a pair of wings: Epic of Gorgas and conquest of yellow fever. Scribners, New York, 1939.
5. Matas, R.: New Orleans M. & S. J., 9:601,-'82.
6. Matas, R.: My personal recollections of Carlos J. Finlay (address in Spanish), Anales de la Academia de las Ciencias Médicas de la Habana, vol. 80, Dec. 3, 1941, Academic year, 1940-41.
7. Dauer, C. C., and Carrera, G. M.: Carlos Finlay's contribution to the epidemiology of yellow fever, Yale J. Biol. & Med., 9:585, 1937.
8. Dominguez, F.: Carlos J. Finlay, son céntenaire (1933); sa decouverte (1881) 1 vol. L. Arnette, Paris, 1935.
9. Dominguez, F.: Carlos Finlay, Arch. Soc. Estudios Clinicos, Habana, Dec. 3, 1941.
10. Finlay, Carlos E.: Carlos J. Finlay and Yellow Fever. Edited by Morton C. Kahn, M. D. Havana Institute Trop. Med. and Oxford University Press, New York, 1940.
11. Wilson, Chas. M.: Ambassadors in White. The Story of American Tropical Medicine, (See "Finlay," "Reed") Henry Holt & Co., New York, 1942.
12. Guiteras, J.: Experimental yellow fever at the inoculation station of the Sanitary Dept. of Havana with a view to producing immunization, Havana, 1902. Series 6.
13. Kelly, H. A., and Burrage, W. L.: Dict. Am. Med. Biog., (see Walter Reed, pp. 1018-1920). Appleton, New York, 1928.
14. Agramonte, A.: The inside history of a great medical discovery, Science Monthly, 1:209, 1915.
15. Reed, W.: Recent researches concerning etiology, propagation and prevention of yellow fever by U. S. Army Commission, J. Hygiene, 2:101, 1902.
16. Kean, J. R.: Walter Reed, Military Surg., 62:293, 1928.
17. Reed, See No. 11, Wilson, loc. cit.
18. Matas, R.: Circular of information addressed to the medical profession for distribution among trained nurses and others entrusted with the care of yellow fever patients. Issued by the Orleans Parish Medical Society, 1905, and the Amer. J. Nursing.
19. Matas, R.: Campaign against yellow fever and the victory of sanitary science guided by experimental medicine in New Orleans in 1905, La. Hist. Quarterly, July, 1925.
20. Augustin, Geo.: History of Yellow Fever, 1 volume, New Orleans, 1909.

EXPERIENCE IN SELECTIVE SERVICE WORK*

T. A. WATTERS, M. D.†
AND
WALKER THOMPSON, M. D.†
NEW ORLEANS

Out of the first 2,000,000 men who were examined through the Selective Service System and the Army Induction Boards, 900,000 walked away rejected as unfit. This fact was termed by our President "an indictment of America."[1] We cannot be proud of our unfit men, but we can be proud of having the healthiest and best Army in the world, and that is what careful selection is accomplishing. Nevertheless, our standards of excellence are not too high. Even before Pearl Harbor our large army hospitals were loaded with sick men, and in one of the military centers in Louisiana there were over 8,000 hospital admissions before December 1941. At that center 2 per cent of the entire force were released from the service on account of physical or mental defects.[2]

The purpose of this paper is to present the neuropsychiatric aspects of selection as we have encountered them in our work with the Medical Advisory Board of the Selec-

*Read before the sixty-third annual meeting of the Louisiana State Medical Society, New Orleans, April 28, 1942.

†From the Department of Medicine, Division of Psychiatry, School of Medicine, Tulane University of Louisiana, New Orleans.

tive Service System. As you know, Medical Advisory Boards were set up in order to aid Local Boards in deciding upon doubtful cases. There are 640 advisory boards in the country, approximately one for each ten local boards. Utilization of psychiatrists on the advisory boards allows for much more thorough examination of selectees because these examiners are more experienced in detecting personality disorders. It is known that selectees taken into the Army of the United States through the Selective Service System have made a better showing as far as the rate of discharge from the army is concerned than have the Regular Army enlistees, or National Guardsmen. It is hoped that recent efforts[3, 27] to speed up induction by relying less on Selective Service and more upon the Army Induction Boards will not result in any lowering of the effectiveness of selection.

PAST EXPERIENCE

We learned many lessons about psychiatry from the last war, and we hope to be able to utilize them now. We know that our Veterans' Bureau Hospitals are populated to the extent of 50 per cent with psychiatric casualties, and that to date the care of these cases has cost the Government one billion dollars, or thirty thousand dollars per casualty.[4, 18] Most of these men had the symptoms of their illness prior to induction and could have been diagnosed before becoming attached to the service. In the case of the psychoneurotics 95 per cent admitted having symptoms before induction according to Cooley of the Veteran's Administration.[18]

What type of men develop these expensive chronic psychiatric disabilities? It is true that given sufficient emotional stress, neurotic symptoms may appear in almost anyone. Sometimes a whole battalion under shell fire showed hysterical fits and vomiting.[5] But we must differentiate between the neurotic symptom and the psychoneurotic personality if we are to recognize the potentially chronic cases. Psychoneurotic symptoms when seen in the normal are minor acute reactions, and do not persist, whereas in the neurotic personality they persist long after the situation producing them has subsided. By taking an adequate history the necessary determinants of the personality can be made. In the neurotic veterans, symptoms were present before the war, were exaggerated by the war, and continued to progress in severity after the war.

We know from past experience that men who have had psychoses cannot be considered good risks and must be automatically rejected.[18] A more difficult task, however, is one which was hardly touched in the last war, and that is the recognition of those individuals who are destined to become psychotic as a result of army service, without having had any previous nervous breakdown. These individuals, the schizoids, the cyclothymes, and some of the psychopaths and neurotics have varying types of personalities. The schizoid is probably the most fragile in the war situation. One authority describes the basic personality structure which is apt to be chronically affected by war as being characterized by selfishness, over-conscientiousness, lack of sociability, and lack of affection for relatives and friends.[5] To this personality, combat duty which exposes him to danger and death, constitutes more than anything else a threat to his excessive self love, and under stress he regresses to a state of infantile helplessness.

Soldiers showing previous anxiety symptoms, sensitiveness, timorousness, or those giving a history of phobias, were as a rule unable to stand the stress of war, whereas some obsessionals, psychopaths, and mental defectives did well in combat although they frequently broke down upon returning to civilian life.[5]

The psychopathic personality, previously called the constitutional psychopathic inferior, deserves considerable attention. These socially maladjusted persons, though sometimes very aggressive fighters, could not be depended upon, were a constant source of annoyance and trouble, disrupted morale, and even at times spread enemy propaganda. While not suffering from outstanding mental symptoms, their condition

caused serious difficulties with others. As a result of their personality deviation, many developed disabling neurotic symptoms or psychoses. According to Roscoe Hall,[4, 11] "The psychopaths are the hardest group to recognize and the most injurious to discipline if admitted to the armed forces. It is imperative to examine the personal history of the psychopath to insure his detection before induction." As he says "Past performance is no less important in psychiatric examination than it is in horse racing."

The psychopaths have always been recognized by the line officers of the Army as undesirables, but they usually had to be hospitalized before they would be considered mental cases.[8] For as Dunn[26] states in his excellent article, "Ordinarily the psychopath shows none of the usual neurotic symptoms. Furthermore, this acting out very frequently produces suffering or unhappiness for those in his environment with very little conflict, guilt-feeling or suffering for himself. This is very much in contrast to the usual neurotic's reaction."

The psychopath is always making a new adjustment but never finds satisfaction. He wants to lead his own life but cannot accomplish this without coming in conflict with others. They are the "ne'er-do-wells," and in the last war the draft boards swept them into the Army on the theory it would "make men out of them."

Baillie,[8] in Canada, recently studied 200 soldiers hospitalized as neuropsychiatric admissions, including 70 psychopaths, 32 mental defectives, and 17 psychoneurotics. Only four of the psychopaths could be allowed to go back to combat duty. He believes that far more of these unsuitable persons could be eliminated.

The best experience of the past might be summed up by Marshal Foch's answer to the question of what makes a good soldier. His answer was that a good soldier is one who has the qualities that make a good citizen.

DISCUSSION OF CASES

The examiners of selectees are faced with the unique problem of finding illness in people who may present no complaints at all. Of course the persons are studied in the usual manner, but the goal is entirely different than in the practice of therapeutics. The tendency to be callous of the individual's feelings has to be guarded against. Since the reports are seen by the selectee, definite diagnoses are often substituted by carefully worded statements which would not result in too much embarrassment. However, we keep our own files of findings and diagnoses.

We have reviewed the 52 cases referred to us between November 1940, and January 1942; all cases coming from seven local boards, mostly in the uptown section of New Orleans, to Medical Advisory Board No. 2. Many of the referrals were from other members of the Advisory Board, with an especially large number from the cardiologist. Fifty of the cases were psychiatric problems. A complete physical and neurological examination was done on each case, in addition to the careful evaluation of the personality factors. In order to make a complete study of all doubtful or unusual cases, Miss Marion Font, psychologist for the Hutchinson Memorial Clinic, supplemented our own studies with either routine or special psychologic testings in 37 cases.

Of the 50 psychiatric cases, two were qualified for the service, one of these for limited service only as 1-B. These two men had a good sense of responsibility, were sincere, interested, and had been making their own living. One had a good record in the C. C. C. camp and was a player on the baseball team. He had been referred because of tremor of the hands which did not interfere with his activities.

Of the 48 men rejected, there were two mental defectives, seven psychopaths, two with major abnormalities of mood (depressions), 17 psychoneurotic disorders, 13 with schizophrenia, one chronic alcoholic, and six epileptics. We see that the psychoneurotics head the list just as might be expected in an ordinary clinic or office practice. Of these there were six hypochondriacs, including two post-traumatic neuroses, two with "effort syndrome," one

with constant head pain, and one whose complaints were essentially gastrointestinal; there were two neurasthenics, three anxiety states, one severe stutterer, one hysteric. The 13 schizophrenics included four with frank psychoses, four who had a previous psychoses with more or less residual, and five cases showing strong schizophrenic potentialities. There were seven psychopathic personalities, four of whom were rejected because of homosexuality. There were six epileptics, one of whom was badly deteriorated. It is interesting that there was only one chronic alcoholic in the total of 48 psychiatric cases.

The intelligence of the 37 men who were tested formally by the psychologist, ranged as follows: six very superior, five superior, five above average, seven average, four dull normal, six borderline, and four with defective intelligence.

The explanation for the small number of mental defectives in this group of rejections may be that they were disqualified as being obviously below normal by the local draft board or else they may not have been detected at all and were sent on to the army induction boards. Many mental defectives unless carefully studied may pass as healthy young men.

It is interesting that 10 per cent of our cases had previously been in the Army and that some of them had a nervous breakdown due to that experience. Although the proportion of negro and white selectees coming before our seven local boards was about equal, only six negroes were referred to the psychiatrist. One would suppose that there would have been a greater number of doubtful psychiatric cases among the young colored boys.

In order to present to you some of our cases, we have prepared several brief formulations:

Case 1. This man had had several prolonged attacks of undulant fever with residual nervousness, fatiguability, and difficulty in thinking. His intelligence was above average, but he solved only two out of 20 Abstract Thinking Problems. He was a peculiar fellow and was rejected because of chronic undulant fever and schizoid trends.

Case 2. This boy sat rigidly in his chair and smiled hopefully; his reasoning was very faulty in spite of having a good vocabulary. When answering a test question about the difference between a child and a dwarf his blood pressure jumped up to 162. He felt that he had to "control his mind." He was disqualified as a simple schizophrenic.

Case 3. A 23 year old male who had a psychosis while in the Marine Corps, following which he finished business school. He was terribly preoccupied with sex and religion, and his thinking was superficial, illogical and concerned with fears of being persecuted in the Army. He was rejected as a schizophrenic.

Case 4. A husky laborer with superior intelligence and psychotic ideas that he was responsible for the war. He told in a disconnected way about spilling packing material at this work, which made others think that he was a spy who was going to set fire to the factory. To the previous examiner he had presented the picture of a psychoneurosis with cardiovascular symptoms and signs predominating.

Case 5. A 35 year old colored porter had recently had an injury with an aftermath of fits, fever, night sweats, plus a great deal of anxiety about his health. Post-traumatic states so easily become chronic that this typical case was considered a poor risk.

Case 6. A 31 year old college graduate was examined just one month after his mother's death and was more than normally upset. He had long been over-conscientious, sensitive to criticism, and suspicious, and at the age of 17 had had a breakdown, at which time he was hoodooed by a colored maid. During the interview, his thoughts frequently strayed from the subject. He had fears of dying and fears of being in a crowd. His brother had a nervous breakdown at Camp Shelby recently.

Case 7. A 28 year old boy was thin and frail, had queer mannerisms, little emotionality, and vagueness in his ideas. He talked in a queer manner about "negative and positive phases" in his life. He had very superior intelligence, but had difficulty with abstract thinking. He said exercise or excitement made him nervous and he feared breaking down under Army conditions. There was a strong possibility of a schizophrenic reaction and he was considered a poor risk.

Case 8. A 35 year old salesman, who had frequently changed jobs. He could not make a go of marriage and had a breakdown at that time with anxiety, ideas of suicide and numerous phobias. Since then he has been tired all the time. He would not last long under discipline.

Case 9. Thirty-two year old with a history of digestive disturbances since the age of 15, showed

extreme variations in pulse and blood pressure. He was so concerned with bodily ailments that he was unable to repeat more than four digits forward. Three members of the Medical Advisory Board were undecided about rejection. He said he would think himself a slacker if rejected.

Case 10. A fat boy of the Frohlich's type, just out of law school with a good scholastic record; had been nervous for about a year and a half, and was afraid of losing his mind like his uncle had done in the last war. Because of hypochondriacal complaints and a recent hysterical collapse he was rejected.

Case 11. A steel worker, who had carried a great deal of resentment for having been brought up in an orphanage. He wanted to live his own life, disliked being bossed, and knew he could not conform to Army discipline. He wanted to show his heroism in the most dangerous combat situations, yet he felt that the Army would persecute him by placing him in such situations. He was a typical psychopath who had no place in the modern Army.

Case 12. A boy with a very labile blood pressure and tachycardia was rejected because of a previous history of prolonged anxiety, although of superior intelligence. He would probably break down with cardiovascular complaints. He had two brothers in the Army.

Case 13. A 27 year old impressionable Italian with deep feelings of inferiority because of his race, wanted to be in the Army to prove his patriotism. He had experienced queer bodily sensations which he attributed to trauma or venereal disease. Tests showed difficulty in concentration and poor abstract thinking. Although he had been consistently employed, we felt that he was probably schizophrenic.

Case 14. A colored elevator operator was rejected because of repeated tendencies towards "fits" and hallucinations accompanying week-end drinking. Intelligence was average.

Case 15. A 21 year old homosexual had practiced perversions since puberty, had been dismissed from college, had been arrested several times, and had a strong alcoholic history. The decorum was that of the homosexual. He would be bad material for the Army.

DISCUSSION AND SUMMARY

Psychiatric disorders appearing in the full-blown form, psychoses or long standing psychoneuroses, were easy to diagnose and dispose of. But there was more difficulty in uncovering the disorders in persons who came to the examiners with little in the way of presenting symptoms. In the latter category we found the pre- and post-psychotic schizophrenics and the psychopaths, who together made up 20 of the 48 men rejected.

The schizophrenics were characterized by a marked discrepancy between their talents and their ability to use such talents, and by a gradual decline in abilities through the years. We observed in these cases their propensity to float along in society, merely existing or working as marginal men, unnoticed until brought up for questioning by the demands of the war situation.

Various types of psychopaths were observed, the sexually perverted, the inadequate, and the suspicious, hostile, and antisocial individuals.

The 17 psychoneurotics were promptly recognized but were harder to classify as to suitability for military service. The duration of their symptoms and their attitude toward their symptoms were valuable criteria to go by. Some had evidence of thinking strongly in terms of compensation. Actual somatic involvement such as cardiovascular and respiratory dysfunction also weighed against acceptance.

Those subject to epileptic seizures were not problems once we were certain of their attacks. Outside information was obtained when necessary.

We found that employers, relatives and friends were very cooperative in giving us aid. On one occasion we made a personal visit to the home of a selectee to learn more of the man's personality from his parents. Our contacts with laymen in the local boards and elsewhere revealed considerable insight on their part into the importance of psychiatric studies.

REFERENCES

1. Davis, M. M.: How healthy are we? The New York Times Magazine, February 22, 1942, page 11.
2. Pignataro, F. P.: The psychoneuroses as they pertain to the military service, The Military Surgeon, 90:29, 1942.
3. Editorial; New England J. M., 226:357, 1942.
4. Communications from the Selective Service.
5. Wittkower, Eric, and Spillane, J. P.: The Neuroses in War, Edited by E. Miller. MacMillan Co., New York, 1940.
6. Southerland, J. D.: A Survey of one-hundred cases of war neuroses, Brit. M. J., 2:365, 1941.
7. VonStorch, T. et al.; Observations and suggestions concerning neuropsychiatric examinations for the Army of the United States, New England J. M., 224:890, 1941.
8. Baillie, W.: A summary of two-hundred neurological

and psychiatric admissions from the Canadian Army Service Forces, Am. J. Psychiatry; 97:753, 1941.
9. Lewy, E.: Compensation for war neuroses, War Med., 1:887, 1941.
10. Green, I.: Neuropsychiatric rejects under Selective Service Act, Med. Record, 154:95, 1941.
11. Hall, R. W.: Peculiar personalities, War Med., 1:383, 1941.
12. Simon, A. et al.: A study of specific data in the lives of one hundred and eighty-three veterans admitted to St. Elizabeth's Hospital, War Med., 1:387, 1941.
13. Thom, Douglas: Schizoid and related personalities, War Med., 1:410, 1941.
14. Official statements, neuropsychiatric examination of applicants for voluntary enlistment and selectees for induction, Circular Letter No. 19, War Med., 1:418, 1941.
15. Cutler, E. C.: What physicians expect from psychiatry, War Med., 1:352, 1941.
16. Pratt, J. H.: Psychiatric factors in the medical examination, War Med., 1:358, 1941.
17. Porter, W. C.: Military psychiatry and the selective service, War Med., 1:364, 1941.
18. Cooley, Martin: The economic aspect of psychiatric examination of registrants, War Med., 1:1372, 1941.
19. Sands, I. J.: Neuropsychiatric aspects in the first World War and in the present emergency, War Med., 1:203, 1941.
20. Cohen, S. A.: The Army medical officer looks at psychiatry, War Med., 1:205, 1941.
21. Kardiner, A.: The neuroses of war, War Med., 1:219, 1941.
22. Bowman, K. M.: Psychiatric examination in the armed forces, War Med., 1:213, 1941.
23. Bartemeier, L. H.: Schizoid personality and schizophrenia, War Med., 1:675, 1941.
24. Aita, J. A.: Neurologic and psychiatric examination during military mobilization, War Med., 1:769, 1941.
25. Menninger, W. C.: A condensed neuropsychiatric examination for use by Selective Service, War Med., 1:843, 1941.
26. Dunn, W. H.: The psychopath in the armed forces, Psychiatry, 4:251, 1941.
27. Editorial: Selective service psychiatry, Psychiatry, 4:440, 1941.

DISCUSSION

Dr. Edmund Connely (New Orleans): This paper is a very timely presentation of the many difficulties which we are encountering in enlisting our new Army, to give you some idea of the extent of the problem and the desirability of an intense selectivity as to the psychiatric work. There is no question but that elimination of the type of people mentioned will not only make a better Army but it will save a lot of money. The question is going to be asked as to the practicability of going into the problem as thoroughly as the doctors have done in their examinations for the advisory board. There is no question probably but that a great many cases are going to be overlooked in the haste of enlistment. From my own experience with the advisory board, which is very brief, I have found it extremely difficult to get histories. Unfortunately the men I saw were practically all from the country and I was not able to contact the family and friends and the exchange board sent practically no details.

There are some types of people we certainly want to keep out. At times it is hard to decide on some of them. No doubt all psychotics—anybody who ever had a psychosis should be kept out. There are a few types possibly that are allowed in. I believe an occasional psychopath might do, but as a general rule, I believe the elimination of them all would be the best plan.

I might say that I went through the last war and I saw the men before, after and during the service. Of course we had a great many cases of psychosis to develop. A great many neurosis developed in people anybody would have placed in an Army but after the war I believe that most of those men got well; the residue of men who would have been probably rejected with comprehensive psychiatric examinations.

The only difficulty with thorough examination is when taking several million men in the Army it is hard to do. I think, however, it is undoubtedly the goal to aim at and make every effort to make as thorough an examination as we can at all times. The ones we miss probably will have to be charged up to the usual waste that goes with war.

Dr. C. S. Holbrook (New Orleans): I was rather surprised at the marked pathology present in their cases. I feel like a number of these cases should have been recognized earlier, and I presume the essayists think so. I believe epileptics should have been eliminated with a diagnosis made from the history and this applies to convulsions of any type. There are a number of cases I have seen where the question has arisen as to advisability of military service where men actually have been in institutions for mental diseases and some of them have been accepted. I was recently talking with one of my confreres and he told me how well one of his patients was getting along and how splendidly he looked in his uniform. This man was recently in an institution. Such things as that should not happen. He will be in a government hospital before long; maybe for 50 years and the taxpayers will have to carry him along.

It is a difficult job, of course, for the examining board when they see a man for a brief period, to dispose him. In questionable cases I do not think you can determine much in an examination of less than an hour. A recent tendency has been to send all men to the induction center—everyone who has two arms and two legs and is not definitely crippled one way or another is sent to camp for examination. Several of these cases who should have been eliminated have been sent to camp and a psychotic disturbance has been precipitated by that experience alone. I think that is a bad plan. As thorough examination as can be made should be made before the man has to go to an induction center.

When Dr. Gillespie, from England, was here a few months ago he discussed this problem with many of us and he had a good scheme. He had in mind a questionnaire that would go back into the patient's family; alcoholism, epilepsy, psychotic

trends in the family, developmental history: stuttering, bed wetter, night terrors, phobias and fears or any other psychoneurotic manifestations. About thirty or forty things would be considered; one might get by if one, two or three of these were positive but anything over that would be considered as dangerous and the man eliminated or sent to a board of specialists for examination. Some such scheme could be worked out and used in the ordinary examining boards and the patients who scored above a certain level could be sent for further examination or definitely relieved of participation in the military program.

Dr. Roland Young (Covington): This is a most important subject and very timely and I would like to delve a little into history. Since the bonus is no longer of present moment, I would like to refer to some of the veterans back at the time when our present President took the reins of government. Half a dozen or more who were not getting bonuses, mostly residents of New Orleans too, came to my office and offered themselves as sick with a present illness history that was not at all convincing and even reluctantly admitted their doctor could find no trouble. I carefully checked them and frankly told them I could and would not make them out sick. They were usually, too, fine physical specimens of about 40 years of age.

This recalls to my mind a recent meeting that the parish society had with a few guest doctors present. A very good and competent man of one of our cities connected with a large industrial concern was with us and talking over some of the situations in the industrial medical field, the malingerer was mentioned in regards to accidents and that sort of thing. He said that he had never seen a malingerer. I suggested that there is such.

May I say a few words about petit mal and potential epileptics. When we suspect a case and cannot confirm this type of disorder the electroencephalogram may aid in the diagnosis.

Dr. Thompson, what do you know about those who want to get in and really aren't fit for the Army and yet try to edge in? I refer to the psychoneurotics and moral deficients. They put up a good front, cover-up and really "malinger" in a sense to gain their end.

Dr. Harry Koretzky (Port Barre): In selecting these boys for the Army we can do the same way as we do in civilian life. Today we have an antiquated system in Louisiana whereby we can take a boy about to go under a psychotic crisis and get the judge to put him in an institution which is enough to bring about a crisis. In handling these Army cases we should be careful and see that these boys are not precipitated into something worse. In the last war many suffered from shell shock and in reality they were already neurotic and psychotic and there was something wrong. I think I agree with Dr. Holbrook that we should look for those things and examine the boys mentally before inducting them in the Army.

In the last war in the French Army in the amount of surgical cases 10 per cent were sent to neurologic centers for war assaults. That seems a small amount now. Of those patients those who had not been discharged as psychotics or from what they called emotional type of psychosis —all recuperated except 84. Many of these I saw abroad.

We are told now, and the man in the street is skeptical about what he is told, that in our own draft the rejections are very large. In Washington examinations, about 50 per cent of the men are rejected on physical grounds; 60 per cent consisting of men who were sent to psychiatric review boards. Of the 60 per cent, 1,000 men, 25 per cent were rejected. That is astonishing in view of the French Army; every citizen serves unless he is rejected on physical grounds. The man on the street should be warned that the criteria for conscription of the army in 1914 in France were different from the trends in the army of 1941 and 1942 in America. The U. S. Army is looked upon as an army of potential officers. Hence the man on the street should be told that it is necessary that this 25 per cent be eliminated by proper examination for two reasons: One reason is that he will not be competent if he is evicted by psychiatric disorders as spoken of here. Secondly, there will be a tremendous economic loss from the valuable material on the part of men not able to take it in the Army. We have very expensive air machines, expensive machine guns and armored cars and any time a man causes destruction of that expensive apparatus, we as taxpayers have to pay for it. Another reason is that the men who are unfit have to be maintained by the medical service of the army, navy and aviation corps. That is expensive and takes away doctors who are required for far more active and important work in attending to military casualties which are a great many in any case. I think we, as doctors, should inform persons in the community that the large number of rejections found by competent psychiatrists is no reflection on the present citizenry or refiection on the psychiatrist.

Dr. Daniel Rose (New Orleans): I would like to ask Dr. Watters and Dr. Thompson if they had encountered any malingering and if so, if they had any pet way of treating this.

Dr. T. A. Watters (In closing): In regard to malingering—I know a great deal of consideration has been given to this matter by selective service workers; however, in our group we have not encountered one single malingerer.

In reference to the matter of epileptics to which Dr. Holbrook referred, a large number were sent to us, which very well could have been rejected

by the local boards. Out of six, five gave definite history of convulsive seizures.

In regard to the comment of Dr. Young, and his question in regard to handling men who want to go in, in spite of disability, candidly I talk with them and point out the likelihood of what will happen if they do and what good they can do if they stay out. None of them have disagreed with me and all remained out of the Army. These particular men were definite risks.

One thing in regard to slackers. I do not believe we encountered one single slacker in the cases reported. I have been psychiatric advisor to the whole state system, so there have been a number of cases which came to my attention, other than the series reported. I know of one slacker who was discussed with the officials at Jackson Barracks. He was studied by another advisory board and was taken in just the same.

There are many methods that have been devised to test potential soldiers but I do not believe anything is as satisfactory as the clinician seeing the person and talking with him.

We are grateful for the discussion. We have learned a great deal from this work and hope we have shared our experience with you.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

Emmett L. Irwin, M. D., Ex officio
For one year: Leon J. Menville, M. D., Chairman.
D. I. Hirsch, M. D.
For two years: Lucien A. LeDoux, M. D., Vice-chairman
H. W. Kostmayer, M. D.
Secretary
For three years: James K. Howles, M. D.

EDITORIAL STAFF

John H. Musser, M. D.....*Editor-in-Chief*
Willard R. Wirth, M. D.....*Editor*
Edwin L. Zander, M. D.....*Associate Editor*

COLLABORATORS—COUNCILORS

H. E. Bernadas, M. D.
C. Grenes Cole, M. D.
Guy R. Jones, M. D.
M. D. Hargrove, M. D.
John G. Snelling, M. D.
Rhett McMahon, M. D.
C. A. Martin, M. D.
W. F. Couvillion, M. D.

Paul T. Talbot, M. D.....*General Manager*
1430 Tulane Avenue

SUBSCRIPTION TERMS: $5.00 per year in advance, postage paid, for the United States; $5.50 per year for all foreign countries belonging to the Postal Union.

News material for publication should be received not later than the eighteenth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

THE JOURNAL *does not hold itself responsible for statements made by any contributor.*

THE DEMAND FOR PHYSICIANS

The supply of physicians is of tremendous importance not only to the armed forces but also to the civilian authorities under whose jurisdiction comes the health and welfare of the population as a whole. The armed forces have now approximately some 40,000 physicians devoting their entire time to military medicine. There are approximately 130,000 of the 170,000 physicians in the country able to carry on in the practice of medicine. This leaves roughly for the population as a whole some 90,000 physicians who are available to take care of the civilian sick. The armed forces at the present time apparently have enough doctors to supply their needs until the first of next year, at which time there will be additional calls for the service of the doctor to meet the ever-increasing size of the Army.

The problem is how many more medical men can be spared from the civilian population. Roughly those in authority in the office of Defense Health and Welfare Services, and of the Procurement and Assignment Service, of which Dr. Lahey is chairman, feel that the upper limit of medical men that can be supplied to the armed forces is 58,000. According to a newspaper story, Colonel Rankin, of the Surgeon General's office, has stated that it will be necessary to have approximately one doctor to take care of about 1500 civilians. This will spread the doctors pretty thin in civilian life and likewise it will be impossible to give the armed forces all the doctors they feel they will need.

The ratio of one to 1500 does not take into consideration the fact that there will be still needed specialists and those particularly skilled in certain branches of medicine who will not practice in the ordinary sense of seeing persons with any type of illness. There will be undoubtedly competition for physicians in civil life, in industry and in the war activities. It will require superb planning to spread the supply of doctors so that no one will suffer. The doctor is often in a quandary. Are his services needed more at home than in the Army and Navy? It is a difficult question to decide. Probably it will have to be decided eventually not by the individual but by those who best are able to judge of the needs.

The Louisiana doctors, it might be said, have volunteered for the Army in a remarkably large number. As a matter of fact of all states in the Union, Louisiana has given a greater percentage of doctors than any other state. Of all the cities in the country New Orleans has contributed a greater percentage of physicians to the armed forces than any other city of considerable population.

QUININE

This country of ours has always considered itself more or less self-sufficient. We have always had an abundance of everything and while many of the things with which we come in daily contact are brought from the South Seas or from the far ends of the world, we have always been able to get a sufficient amount and have never felt their need. Now with the advent of war and the closing of so many channels of commerce, we are beginning to feel in many fields a real lack of materials we have always thought essential. Lack of rubber is almost too hackneyed an example to quote.

The medical profession now finds itself faced with a very limited supply of quinine. Quinine is of extreme importance not only for the civilian population but also for the troops moving to tropical countries. Druggists have been urged to send to a central collection bureau all of their excess quinine. The physician is being asked not to use quinine except in proved cases of malaria and to substitute atabrine, but even this latter drug is scarce. Quinine, and its alkaloid quinidine, is not only a specific in malaria but is a near specific in certain types of cardiac disorders. A small amount of quinine and a good reserve of quinidine are being kept for the treatment of these heart disorders. There seems to be an adequate supply of quinidine if it is used only as indicated. The same thing applies to the quinine salts in the treatment of malaria. Do not give quinine unless the plasmodia are definitely shown to be present in the blood. Avoid the use of quinine in compounds and mixtures which are given for purposes other than their anti-malarial effect. Do not use quinine under any circumstances unless it is absolutely necessary. If the physician has in his office a supply of quinine it might seem only a small contribution to our efforts to win the war, to send it to the central collecting agency, but that quinine might save a soldier's life.

Of all the tropical diseases that are of importance, malaria is by all odds the number one on the list of diseases that have to be taken care of, according to Sawyer of the Rockefeller Foundation, who is serving at the request of the Secretary of War as a consultant on tropical diseases. Already malaria is causing a terrific morbidity in the tropics in the armies of the world. Conserve quinine and donate any surplus quinine.

VARICOSE VEINS

The local secondary effects of varicose veins in the legs are well known. When varicosities are extensive there is an associated edema, often eczema of the overlying skin, and ulceration may take place, or as is well known, there is the occasional pulmonary complication from thrombus formation, followed by embolus to the lungs. However, it is not generally recognized that there are symptoms which depend in considerable part on the failure of circulatory function which arises as result of the pooling of blood in varicose veins. Such symptoms include fatigue, dyspnea, dizziness, fainting, precordial distress, all arising as result of hemodynamic disturbances. A normal person in the upright position is assumed, on excellent evidence, to have an accumulation of at least 500 c. c. of blood in the legs. When the veins are markedly distended it can be readily appreciated that the accumulation is even very much more marked than with the normal. An accumulation of a large amount of blood in this peripheral pool necessarily occasions an insufficient amount of blood to the tissues of the lungs, of the brain and to the coronary circulation, anoxemia presumably producing most of these symptoms listed above.

In a recent study by Chapman and Asmussen,* a survey was made of the state of the circulation in a large group of patients, some 250 from the out-patient department of the Massachusetts General Hospital, who had large varicose veins. Approximately one-fifth of these patients had dyspnea and other symptoms already mentioned. None of the patients who had symp-

*Chapman, Earle M., and Asmussen, Erling: On the occurrence of dyspnea, dizziness and precordial distress occasioned by the pooling of blood in varicose veins, J. Clin. Invest., 21:393, 1942.

toms had any of the characteristic or even equivocal evidence of heart disease. These patients were studied in the recumbent and in the tilted position. While some of the authors' methods and some of their results are open to serious criticism, nevertheless the fact remains that there were circulatory changes demonstrated which were highly suggestive. It is well known that the venous pressure is increased in the presence of varicose veins even when a patient is in the recumbent position. There is usually an increased greater blood volume to compensate for the blood pooled in the extremities. It is quite possible that varicose veins are dependent upon some fundamental, possibly some embryologic defect in the vein which in turn is made worse by the increased venous pressure in the upright or supine position. A vicious circle is established. However, without discussing the correctness of the methods employed by these authors, the fact remains that in their follow-up of the patients who had pronounced varicosities the subjective symptoms in the different individuals disappeared or diminished to a remarkable degree when corrective measures were taken to overcome the pathologic state of these blood vessels. The practical application of these physiologic studies is obvious. Varicose veins should be obliterated. The patient who complains of some of the symptoms cited above should be examined for the presence of varicosities and relief may be promised if the varicosities that may be found are corrected.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

November 2. Orleans Parish Medical Society Board of Directors, 8 p. m.

November 3. Eye, Ear, Nose and Throat Staff, 8 p. m.

November 4. Clinico - pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.

November 5. Clinico - pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Baptist Hospital, Executive Meeting, 8 p. m.

November 9. Scientific Meeting, Orleans Parish Medical Society, 8 p. m.

November 11. Clinico - pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

November 16. Hotel Dieu Staff, 8 p. m.
Clinico-pathologic Conference, Baptist Hospital, 8 p. m.

November 17. Charity Hospital Medical Staff, 8 p. m.

November 18. Clinico - pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Charity Hospital Surgical Staff, 8 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

November 19. Clinico - pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

November 20. I. C. R. R. Hospital Staff, 12:30 p. m.

November 24. Baptist Hospital Staff, 8 p. m.

November 25. Clinico - pathologic Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.

November 26. Clinico - pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

November 27. L. S. U. Faculty Club, 8 p. m.
New Orleans Hospital Dispensary for Women and Children Staff, 8 p. m.

During the month of October the Society held one regular scientific meeting. The program was as follows:

1. Report on the Maternal and Fetal Mortality during 1941
   By Dr. Edward L. King, Chairman of the Committee which conducted this survey.
2. Duodenal Diverticulitis
   By Drs. Donovan C. Browne and Gordon McHardy.

NEWS ITEMS

Dr. George Mayer presented a paper on Pregnancy Complicating Fibroids at the Monroe Charity Hospital, Monroe, on September 14.

Dr. Julius L. Wilson presented a paper on Tuberculosis in War Time at the Southern Tuberculosis Conference, Memphis, October 5-7.

EDWIN L. ZANDER,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

AMERICAN MEDICAL ASSOCIATION

After prolonged and intensive consideration, the Board of Trustees of the American Medical Association has come to the conclusion that the annual session of the Association scheduled to be held in San Francisco should be cancelled. An official announcement to that effect will appear in The Journal of the American Medical Association. This decision of the Board of Trustees was made after securing the best available official information and after thorough consideration of the many factors involved.

NEWS ITEMS

Dr. Charles A. Baumhauer, a Tulane graduate of 1938, was awarded by Major General George C. Kenney at General MacArthur's Headquarters, Australia, a silver star for gallantry in action. The citation read: "He did a great deal to relieve the pain and suffering of wounded men and helped establish a feeling of safety and security among the personnel, who had been through a harrowing experience."

Dr. G. W. McCoy, Director of the Department of Public Health of the School of Medicine, attended the Meeting of the Council on Pharmacy and Chemistry of the American Medical Association at Chicago, Illinois, on October 2 and 3, 1942.

First Lieutenant J. C. Swartzwelder, M. C., formerly Assistant Professor in the Department of Public Health of the School of Medicine, is now on active duty in the United States Army, and is stationed at LaGarde General Hospital in New Orleans.

Dr. Marion Winifred Hood, formerly with the University of Illinois College of Medicine, has recently been appointed Assistant Professor of Parasitology in the Department of Public Health. Dr. Hood received her M. A. degree from the University of Wisconsin, and her Ph. D. from the University of Illinois College of Medicine. Her undergraduate college work was done at Carroll College, Waukesha, Wisconsin, from which college she received an A. B. degree. Dr. Hood has held positions at Northwestern University Medical School and at the University of Illinois College of Medicine; she has also done special work at Tulane University, in the Department of Tropical Medicine of the Tulane School of Medicine, and also at Gorgas Memorial Laboratory, Panama.

On September 10, 1942, Dr. Edgar Hull, Director of the Department of Medicine of the School of Medicine, and Dr. Robert Lowe, Instructor in Medicine, spoke before the Seventh District Medical Society at Opelousas, Louisiana. Dr. Hull's subject was Some Medical Aspects of Chemical Warfare Agents. Dr. Lowe's subject was Some Little-Recognized Points in the Diagnosis of Nutritional Deficiencies.

Major Chester S. Fresh, a member of the Department of Medicine staff of the Louisiana State University School of Medicine who is on leave of absence for the duration, has been made Commanding Officer of the Station Hospital at Grenier

Field, Manchester, New Hampshire. Major Fresh, who is an Army Air Corps Surgeon, has been on active duty since 1940.

Dr. Val H. Fuchs, Dr. George Taquino, and Dr. Monte Meyer were in Chicago, Illinois, attending the annual meeting of the American Academy of Ophthalmology and Otorhinolaryngology, which was held on October 11-14. All three of these doctors are members of the staff of the Department of Otorhinolaryngology of the School of Medicine of Louisiana State University.

The Third Annual Medical Meeting of the National Foundation for Infantile Paralysis will be held in New York City on December 3-4 inclusive.

The Salmon Committee on Psychiatry and Mental Hygiene of the New York Academy of Medicine has named Dr. Emilio Mira, professor of psychiatry at the University of Buenos Aires, Argentina, and formerly full professor of psychiatry at the University of Barcelona, Spain, as the Salmon Lecturer for 1942.

The lectures will be held on three successive Friday evenings: November 6, November 13 and November 20, in the New York Academy of Medicine Building, 2 East 103rd Street, New York City. Members of the medical profession and their friends are invited to attend.

SUPPLEMENTAL STAFFS FOR EMERGENCY BASE HOSPITALS

Selected hospitals and medical schools in the coastal states have been invited by the Surgeon General of the U. S. Public Health Service to organize affiliated staff units which will be ready to serve when needed to supplement the medical staffs of Emergency Base Hospitals, now being designated by the Medical Division of the Office of Civilian Defense. These units resemble the affiliated hospital units of the Army except that they are smaller in size. They are being organized in order to assure suitable status and remuneration for physicians who may be called upon in the event of an enemy attack in their locality to care for casualties and other patients who have been evacuated to the interior of their region.

The designation of Emergency Base Hospitals and the formation of affiliated units are part of a joint hospital program of the Medical Division of the Office of Civilian Defense and the U. S. Public Health Service. The program is authorized under an agreement concluded March 2, 1942, between the Federal Security Administrator and the Director of the Office of Civilian Defense.

Physicians in the affiliated units will be commissioned in the inactive Reserve Corps of the Public Health Service. Unless an urgent need for their services should arise, they will remain on an inactive status for the duration of the war. They will be called to active service only if hospitals in their regions must be evacuated and the civilian population must be moved because of military necessity. Activation of the units will take place by order of the Surgeon General at the request of the Chief Medical Officer of the Office of Civilian Defense on advice of the Regional Medical Officer and the State Chief of Emergency Medical Service in charge of the affected areas.

The commissions will be in grades ranging from Passed Assistant Surgeon to Senior Surgeon, and when units are activated, these officers will have the rank, pay and allowances equivalent to those of officers in the armed forces.

Institutions invited to form units are asked to nominate an outstanding physician or surgeon as Unit Director, who, if he meets the physical and other requirements, will be commissioned Senior Surgeon in the Public Health Service Reserve. The Unit Director will then nominate the remainder of the staff and appointments will be made after clearance through the State Chief of Emergency Medical Service. Nominations are to be limited to male physicians over 45 years of age, to those under that age who have physical disabilities which disqualify them for military service but which do not interfere with their professional activities, and to women physicians.

In order to avoid serious depletion of the professional staffs in the medical schools and hospitals of the target areas, the Surgeon General has recommended that medical schools draw their affiliated units in part from associated hospitals and that nonteaching hospitals invite physicians from other qualified hospital staffs to collaborate.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION

The American Gastroenterological Association on January 1, 1943, will publish the first issue of a new Journal to be called, Gastroenterology. The new Journal will be owned by the Association, will be the official publication of the Association, and will be published by Williams and Wilkins Company. It will appear monthly, and the subscription price will be $6.00 per year.

Dr. W. C. Alvarez will be the Editor (after June, 1943) and Dr. A. C. Ivy will be the Assistant Editor. The Editorial Board will consist of Doctors A. H. Aaron (Buffalo), J. A. Bargen (Rochester), H. L. Bockus (Philadelphia), W. C. Boeck (Los Angeles), B. B. Crohn (New York), R. Elman (St. Louis), F. Hollander (New York), Sara Jordan (Boston), J. L. Kantor (New York), B. R. Kirklin (Rochester), P. Klemperer (New York), F. H. Lahey (Boston), F. C. Mann (Rochester), H. J. Moersch (Rochester), V. C. Myers (Cleveland), W. L. Palmer (Chicago), J. M. Ruffin

(Durham), R. Schindler (Chicago), and D. L. Wilbur (San Francisco).

Gastroenterology invites for publication clinical and investigative contributions which are of interest to the general practitioner as well as the specialist and which deal with the diseases of digestion and nutrition, including their psychological, biochemical, pathological, parasitological, radiological and surgical aspects.

Manuscripts should be sent to Dr. A. C. Ivy, Gastroenterology, 303 East Chicago Avenue, Chicago, Illinois. Letters regarding subscriptions and business matters should be addressed to Mr. R. S. Gill, Williams and Wilkins Company, Baltimore, Maryland.

UNITED STATES PUBLIC HEALTH SERVICE

Passed Assistant Surgeon Jack G. Mearns and Surgeon Samuel J. Hall have been ordered to the United States Marine Hospital in New Orleans for duty. Assistant Surgeons James A. Skultety and Wardell M. Mills have been called to active duty in the Reserve Corps and ordered to the Marine Hospital in New Orleans.

HEALTH OF NEW ORLEANS

The Bureau of the Census, Department of Commerce, reports that for the week ending September 5 there were 108 deaths in the City of New Orleans, divided 69 white and 39 negro, with 24 deaths in children under one year of age. For the week ending September 12 there were only 106 deaths in the city, divided 71 white and 35 negro. There were only eight deaths in young infants this week, a truly remarkable record. For the following week which closed on the 19th of September, the 118 deaths were divided 74 white, 44 negro. Eleven of these deaths were in babies under one year of age. The following week there were only 95 deaths, but the week following which closed October 3 there were 145, so the two weeks' average would be small although not in figures comparable to the week of September 26. In this particular period of time there were 60 deaths in the white, 35 in the negro, and seven infants. The 145 deaths in the week of October 3 were white 95, negro 50, infants 18. The death rate this year is measurably smaller than last year. This seems to be general throughout the country although not quite as marked as in New Orleans.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Section of Epidemiology of the Louisiana State Board of Health shows that for the week ending September 12, there were only four diseases listed in numbers greater than 10, namely, 350 cases of syphilis, 106 of gonorrhea, 44 of pulmonary tuberculosis, 11 of typhoid fever. During this week there were listed 263 cases of syphilis, 82 of gonorrhea, 38 of pulmonary tuberculosis, and most unusual 15 instances of typhus fever, seven of which were from Lafourche Parish and the rest scattered all over the state. Malaria for the first time made its appearance this week with five cases. For the week which came to a close on the 26th of September, there were recorded 788 cases of syphilis, 77 of gonorrhea, 26 of pulmonary tuberculosis, 15 of malaria, and 10 of diphtheria. One case of poliomyelitis was reported this week and five of typhus fever. The malaria cases occurred seven in Lincoln Parish and seven in Ouachita Parish. For the week which closed October 3, there were sent in to the Division of Epidemiology reports of 591 cases of syphilis, 270 of gonorrhea, 42 of chancroid, and 34 of pulmonary tuberculosis. Two cases of poliomyelitis were found in this particular week, as well as three of typhus fever and five of malaria.

The New Orleanas Medical and Surgical Journal,
1430 Tulane Avenue,
New Orleans, Louisiana
Dear Sirs:

Please find enclosed a copy of a plan for training the much needed nurses for our armed forces. This plan has been read very carefully by a number of outstanding doctors, all of whom have stated that in their opinion, it is an excellent idea.

It is on the suggestion of some of these that the proposal is submitted for publication in the "Journal."

Thanking you, I am

Yours truly,

(Miss) Terry Pullig.

TO "STREAMLINE" TRAINING OF NURSES FOR THE ARMED FORCES

Below is a brief outline of a plan for training the much needed nurses for our armed forces.

After having read so much about the need for nurses, I decided to talk to Army and Navy officials, doctors, nurses, and civilians who were in World War I about it and the possibility of getting registered nurses. Everyone was of the opinion that we need more and more nurses immediately but WHERE CAN WE GET THEM? I know for a fact that one general hospital unit has been practically begging since 1940 for nurses to volunteer as commissioned officers and by June 1942 this unit still did not have enough nurses to become a functional unit.

To keep pace with the expanding Army and Navy, the Government hopes that 55,000 girls will enter nursing schools this fall. They will have to pay $200 to $500 tuition for three years of training. Since most of these girls can work in some kind of much needed defense work and make good salaries it is going to be very difficult to get girls

to go to nursing school for three years. Assuming that they do though, under the present procedure they will be of no use to the Army and Navy until 1945. But nurses are needed *now* as well as then. Why not do the same thing to nurse training that has been done to the ship-building industry or the training of Army officers in officer training camps, viz., "STREAMLINE" the course so that the need of nurses for this *emergency* would be solved. After the emergency these nurses would *not* return to civilian life as trained nurses unless they went back and completed the regular course for nurses. In fact, during the emergency they would be enlisted nurses with equal opportunity for advancement in rank that enlisted men have.

The plan to solve this immediate need for nurses is:

1. The Army and Navy will select a number of doctors and nurses open-minded to possibilities of new methods of doing things. This committee is to work out the needs, requirements, and methods of getting it done even if doctors and nurses must be hired to train these "special" classes as rapidly as possible, but thoroughly in selected hospitals. By making specialists of these enlisted nurses it will take a much shorter time than the three years. A graduate nurse and a doctor said that it could be done in three months if the individual were intelligent and would really apply herself.

2. Since marriage and the physical requirements are keeping many registered nurses from volunteering their services, then why not reverse the procedure by enlisting only girls who are not married and have already passed a physical examination.

3. As enlisted nurses, there could be three different groups: (a) high school graduates; (b) those who have finished two years of college; (c) college graduates. All of these should have at least average ability. These could volunteer as enlisted nurses with the rank of (a) privates; (b) privates first class; (c) corporals with the same pay that men of these ranks get in the Army.

4. After the girls are selected, the number could be divided into groups which would be sent to hospitals selected to give this special training. When they enter for training, each individual can complete the requirements as rapidly as possible. On completion of the basic courses* these enlisted nurses would register, giving necessary data in a central office from which hospital units would get the number needed to become a functional unit. At the time of registration if a nurse is not called to duty immediately she may then specialize in some field in which some special aptitude has been shown during her basic training.

5. When a hospital unit was being organized the nurses needed could be composed of a percentage of registered nurses as commissioned officers and the remainder composed of the enlisted nurses trained under supervision of the Army.

TERRY PULLIG,
Louisiana State University.

*Basic courses would include sufficient training in the different phases of nursing needed by the Army and Navy so that these nurses could perform the duties under the direction of a doctor or a registered nurse if the necessity were to arise. Such phases of training as obstetrics, pediatrics, are unnecessary for Army and Navy nurses.

WOMAN'S AUXILIARY
Louisiana State Medical Society

The coming of October has brought the usual renewed activity of members of the Woman's Auxiliary after a summer lull. Some of our Doctors and their wives were fortunate enough to get away for vacation trips but most of us had to curtail them to week-end expeditions for fishing or to country places. And some are still looking ahead to the hunting season for the only respite they will have from the every day grind.

Many groups and individuals worked energetically at Red Cross or other war-imposed tasks all through the hot weather. But it is only now that the Auxiliaries are meeting regularly for their programs, business and social hours.

The State President, Mrs. Clarence B. Erickson, is urging the members throughout the state to put especial emphasis on the Fund for Indigent Widows of Physicians and build the sum up to the point where it may be put to work if it is needed.

Orleans Parish has for a number of years given vital help to a widow of a physician through their Commemoration Fund, and since May, 1942, a second widow has received regular aid. It is not only in New Orleans that such a Fund could serve its purpose, but throughout all of Louisiana.

It is realized that it would take many years for the groups with small memberships to build up a working reserve, but with the Auxiliaries from the entire state working and pooling their sums, it should not be long before we do have enough to use. The calls will no doubt be few—and we pray that they will be few, but when and if one does come, we shall have such a satisfaction in being able to meet the need that it will all be eminently worth while.

"How is the money to be raised?" you ask. Again I refer to Orleans Parish because of their experience. There, each member is assessed one dollar a year, payable with her dues. In addition, members make donations in memory of loved ones or friends who have passed on. Many do this instead of sending flowers, and others commemorate happy events by making gifts in appreciation of those occasions.

Last year a generous friend of Mrs. Hebert, who was then State President, gave twenty-five dollars to the State Fund when she heard of the fine work Orleans Parish was doing.

And so, our Fund will grow. Let us support this

fine project wholeheartedly and in a few short years we shall have a great oak from the little acorn planted rather timidly in 1941.

MRS. JAMES W. WARREN, State Chairman,
Press and Publicity.

STANDING COMMITTEES

Mrs. Clarence B. Erickson, President of the State Auxiliary, has appointed the following chairmen of Standing Committees:

Archives—Mrs. Paul Lacroix, 3132 State St. Dr., New Orleans.

Doctor's Day—Mrs. J. B. Montgomery, Lafayette.

Exhibits—Mrs. B. L. Cook, Minden.

Finance—Mrs. R. Spedale, Plaquemine.

Historian—Mrs. M. C. Wigginton, Hammond.

Hygeia—Mrs. C. P. Rutledge, 4334 Richmond Ave., Shreveport.

Legislation—Mrs. F. G. Ellis, 4624 Fairfield Ave., Shreveport.

Organization—Mrs. J. D. Frazer, DeRidder.

Parliamentarian—Mrs. Brinsfield King, 127 Oakwood Dr., Baton Rouge.

Cancer Control—Mrs. Nathan Polmer, 2207 Carondelet, New Orleans.

Program—Mrs. D. L. Kerlin, 648 Unadilla, Shreveport.

Press and Publicity—Mrs. Jas. W. Warren, 470 Audubon Blvd., New Orleans.

Printing and Supplies—Mrs. F. Creighton Shute, Opelousas.

Public Relations—Mrs. D. T. Martin, Donaldsonville.

Revision of By-Laws—Mrs. A. A. Herold, 1116 Louisiana, Shreveport.

Entertaining Service Men—Mrs. O. B. Owens, Pineville.

Bulletin—Mrs. R. T. Lucas, 535 Pierremont Rd., Shreveport.

Red Cross—Mrs. A. D. Mangham, Elizabeth.

Widows' Fund—Mrs. Aynaud Hebert, 2013 Napoleon Ave., New Orleans.

COUNCILORS

First District—Mrs. Edmond Souchon, 2123 Octavia, New Orleans.

Second District—Mrs. W. R. Metz, 2437 Jefferson, New Orleans.

Third District—Mrs. Willard Ellender, Houma.

Fourth District—Mrs. J. E. Heard, 3455 Caldwell, Shreveport.

Fifth District—Mrs. C. P. Gray, Sr., Monroe.

Sixth District—Mrs. A. W. Martin, Bogalusa.

Seventh District—Mrs. Olin Moss, 2011 Shell Beach, Lake Charles.

Eighth District—Mrs. M. H. Foster, 1316 Albert, Alexandria.

BOOK REVIEWS

A Handbook of Allergy for Students and Practitioners: By Wyndham B. Blanton, M. A., M. D., Litt. D. Springfield, Ill., Charles Thomas, 1942. Pp. 190. Price $3.00.

In this small book the author condenses much of the present day knowledge of allergy. It should be especially helpful to the busy practitioner and medical student who do not have enough time to read the larger and more complete works on the subject. A general knowledge of allergy is valuable for any medical man, as more and more conditions in all fields of medicine are proving to have an allergic background. The important thing is for physicians to recognize an allergic condition whenever it is encountered. The sections on dermatologic, gastrointestinal, genito-urinary, neurologic, eye, and cardiovascular allergy are particularly interesting.

HENRY D. OGDEN, M. D.

Nephritis: By Leopold Lichtwitz, M. D. New York, Grune & Stratton. Pp. 328. Price $5.50.

To one who has listened to Dr. Lichtwitz and noted his comprehensive knowledge and his sincerity of purpose, his book on nephritis takes on added interest. This is a concise book replete with information of value to the physician. It is a happy blending of the scientific and practical. The author constantly aims at placing methods of diagnosis and treatment so simply and plainly that with a minimum of time and equipment they can be advantageously employed.

The first nine chapters deal with the basic facts of the functional physiology and pathology of the kidney. Following these are the chapters dealing with the various clinical types of nephritis. The author has appended a list of references at the end of each chapter and the book contains several illustrations and graphs. A good index has been compiled. It is the opinion of the reviewer that this book should prove to be a ready and reliable reference.

I. L. ROBBINS, M. D.

The Ophthalmic Formulary: By G. Griffin Lewis, M. D., F. A. C. S. Springfield, Illinois, Charles C. Thomas, 1942. Pp. 167. Price $3.50.

This pocket sized volume of 170 pages is divided into three sections. The first section is devoted to the "pet" prescriptions of ophthalmologists, famous and otherwise, during three generations.

It serves a useful and possibly a harmful purpose. The reader is familiarized with ophthalmic therapeutic trends, especially of the past. Some of the prescriptions mentioned are among those frequently used by most ophthalmologists. Others, however, are souvenirs of bygone days and of concepts which have given way to more efficient therapy. The indiscriminate use of these prescriptions can do harm. They are not "heaven sent" magic formulae, as the tyro may easily infer. They are not substitutes for understanding each patient's individual eye problem. Unintelligent experiments with some of these prescriptions may actually do harm by delaying more effective treatment.

The second section of this volume is devoted to an alphabetic arrangement of drugs used in ophthalmic practice. It brings to the reader the names and general purposes of the best known ophthalmic medicaments. In some instances, unfortunately, the most frequently used dosage or strength is not given.

The index section is reasonably complete.

CHARLES A. BAHN, M. D.

Manual of Standard Practice of Plastic and Maxillofacial Surgery: Sponsored by the National Research Council. Philadelphia, W. B. Saunders Co., 1942. Pp. 432; illus. Price $5.00.

This important manual is the first attempt to standardize the practice of plastic repair and of maxillofacial surgery. It is edited by an able group of plastic, dental and maxillofacial surgeons from the civilian professions and by representatives of the U. S. Army Medical and Dental Corps.

Its intent and its purpose is to bring to the medical officers of the armed forces a text to follow in the handling of the disfiguring and functional injuries of war. It fulfills its purpose to an admirable degree. The individuals responsible for the preparation of this text have made a definite contribution to civil and military surgery alike in its plastic and maxillofacial branches.

This treatise, of some 400 pages, clearly and generously illustrated and written in a concise, clear-cut form covers the repair of the defects and deficiencies caused by trauma in a most efficient and detailed manner. While it is not intended as a book for specialists *per se*, its contents will serve specialists in these branches to their benefit.

The reader is introduced to the body of the text by a consideration of general principles, fundamentals and essentials of plastic repair, which begins from the moment the casualty is first seen. What to do is strongly emphasized and what not to do is likewise emphatically stressed.

The repair of tissue deficiency by skin coverage and the devious means of bringing this about by various types of skin grafts and flaps are clearly presented.

An effort has been made to divide the first section of the book into regional chapters and each anatomic area receives detailed attention. The methods of repair described are those which have stood the test of time and are those more apt to give uniformly satisfactory results. Operative technic is associated with corresponding figures and graphic illustrations, which are most helpful in clarifying surgical approach and step by step procedures.

The second section is devoted to maxillary surgery. These chapters concerning gunshot wounds involving the jaw and fractures of the jaw are outstanding, both as to their informative descriptions as well as the practical and concise methods employed in their care.

Section three deals with maxillofacial prosthesis, its fundamentals, the relationship between surgeon and dentist, its anatomic and cosmetic aspects and the indications for application.

Section four, on anesthetic technics, discusses the types and varieties of anesthesia used, the preoperative medication and the choice of anesthetic agent. Ether anesthesia is still considered the safest in inexperienced hands. This small section maintains the high standard of the balance of the book.

The manual is certain to receive the approbation it deserves. It should be read by every medical man in the armed forces of the country as well as civilian physicians. They will find it of inestimable assistance in solving some of the problems of the preservation of feature and function.

WALDEMAR R. METZ, M. D.

The Surgery of Pancreatic Tumors: By Alexander Brunschwig, M. S., M. D., F. A. C. S. St. Louis. C. V. Mosby Co., 1942. Pp. 416, illus. Price $7.50.

This treatise was written in order to "deal with relatively few facts in a new developing field and (may) serve to stimulate further work in this field." The monograph is a review of the known facts but also, of necessity, deals with many controversial subjects in pancreatic disease. The volume is a timely and interesting dissertation on a rapidly expanding and intriguing surgical field. It is well organized and written. The illustrations are good but the photographs taken during operative procedures do not conform to perfection.

LEROY KLEINSASSER, M. D.

Modern Attack on Tuberculosis: By Henry D. Chadwick, M. D., and Alton S. Pope, M. D. New York, The Commonwealth Fund, 1942. Pp. 95. Price $1.00.

The reviewer finds this book by Chadwick and Pope more than suitable for the purpose for which it was written. Not only do the authors discuss the current problems in tuberculosis control and

the operation of an effective regional control program, but the order in which the various chapters are presented, seems to cover well all there is to know concerning history, epidemiologic aspects, modern diagnostic procedures and the results of treatment in sanatoria.

The part which is very interesting and quite appropriate in tuberculosis control, is the emphasis made on case reporting, which has been a factor that has unquestionably retarded the program of the control of this disease, due to the fact that both the public and the medical profession have failed to regard case reporting as a vital and essential item in the ultimate eradication of tuberculosis.

The chapter on case finding stresses also the value of mass examinations among school children which the reviewer believes to be one of the most important activities in tuberculosis control and the possible prevention of adult tuberculosis.

The chapter on community campaign of eradication, is one of the most thorough which has ever been written, and if followed out as the authors have intended, those concerned, health officers, public health nurses and others concerned with community health, will find "The Modern Attack on Tuberculosis" a very efficient means of tuberculosis control and a wonderful guide to the ultimate and entire eradication of the disease not in the very distant future.

EMILE A. BERTUCCI, M. D.

Hippocratic Medicine; Its Spirit and Method: By William Arthur Heidel. New York University Press, 1941. Pp. 149. Price $2.00.

A most learned book devoted to a school of medical thought and practice that harks back to the golden days of Greek science. The Hippocratic tradition as we know it contained in the so-called writings of Hippocrates is the quintessence of the finest achieved in the science, the art, and the ethics of Grecian medicine. In the story of the principal character there is a brilliant exposition of science, its ideals, its ideas, its methods and its professors. Against a background of splendid erudition and coupled with fine quotations the author has concocted for the historically-minded physician a fine treat.

I. L. ROBBINS, M. D.

Collected Papers of the Mayo Clinic and the Mayo Foundation: Edited by Richard M. Hewitt, B. A., M. A., A. B. Nevling, M. D., John Miner, B. A., Sc., D., James R. Eckman, A. B., and M. Katharine Smith, B. A. Philadelphia, W. B. Saunders Co., 1942. Pp. 1099, illus. Price $11.50.

This 1099 page volume is a year book from Mayo Clinic. It presents a compilation classified under twelve sections separately devoting the articles referring to eleven specialties and a final miscellaneous grouping containing numerous interesting treatises.

Of course, the physician who follows medical literature has read many of the interesting articles, particularly he who reads the "Proceedings of the Staff Meeting of Mayo Clinic." Many of the statistics and illustrations are familiar to one who has examined texts emanating from the clinic. The 659 articles titled astound one, emphasizing the flood of the medical literature from this single source. Selecting subjects the reviewer was especially interested in, I draw attention to the section on aviation medicine, the coverage of esophageal diseases, the attention given gastric carcinoma (a prominent Mayo Clinic subject), chemotherapy as related to each specialty. Pediatrics, obstetrics and pathology seem omitted, but others will find interesting coverage of their specialty.

The volume is well indexed. The abstracts are well chosen and nicely presented. The profession, as a whole, will accept the volume well and more particularly those physicians who have been associated with the Mayo Clinic.

GORDON MCHARDY, M. D.

PUBLICATIONS RECEIVED

W. B. Saunders Company, Philadelphia: Military Surgical Manuals Volume II, Ophthalmology and Otolaryngology, prepared and edited by the Subcommittees on Ophthalmology and Otolaryngology of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Military Surgical Manuals Volume III, Abdominal and Genito-Urinary Injuries, prepared under the auspices of the Committee on Surgery of the Division of Medical Sciences of the National Research Council.

Charles C. Thomas, Springfield, Ill.: Blood Substitutes and Blood Transfusion, edited by Stuart Mudd, M. A., M. D. and William Thalhimer, M. D.

Columbia University Press, New York: Medical Parasitology, by James T. Culbertson, M. D.

Walter W. Brown Publishing Co., Atlanta, Ga.: The Mind and Its Disorders, by James N. Brawner, M. D.

Grune & Stratton, Inc., New York.: Aftereffects of Brain Injuries in War, Kurt Goldstein, M. D.

Lea & Febiger, Philadelphia: Roentgen Treatment of Diseases of the Nervous System, by Cornelius G. Dyke, M. D., F. A. C. R. and Leo M. Davidoff, M. D., F. A. C. S. A Text-book of Fractures and Dislocations, by Kellogg Speed, S. B., M. D., F. A. C. S.